DOCUMENT RESUME

ED 116 009 CE 005 918

AUTHOR	Welton, Richard; Robb, Sam
TITLE	Agricultural Products: Program Planning Guide: Volume 4.
INSTITUTION	Southern Illinois Univ., Carbondale. Dept. of Agricultural Industries.
SPONS AGENCY	Illinois Professional and Curriculum Development Unit for Vocational and Technical Education, Springfield.
PUB DATE	30 Jun 75
NOTE	107p.; For Volumes 1-3 and 5-7, see CE 005 915-917 and CE 005 919-921
EDRS PRICE	MF-$0.76 HC-$5.70 Plus Postage
DESCRIPTORS	*Agricultural Education; Behavioral Objectives; *Course Content; *Curriculum Guides; *Food Processing Occupations; Grains (Food); Lesson Plans; Meat Packing Industry; Occupational Clusters; Occupational Information; Post Secondary Education; Program Planning; Resource Guides; Secondary Education; Unit Plan; Units of Study (Subject Fields)

ABSTRACT

The program planning guide for agricultural products was written to assist Applied Biological and Agricultural Occupations (ABAO) teachers in enriching existing programs and/or to provide the basis for expansion of offerings to include additional materials for the cluster areas of meat and meat byproducts, dairy processing, fruit and vegetable processing, and grain and grain byproducts. Each guide includes the following components: an introduction (brief discussion of the subject matter); sample job titles and cluster areas (major job titles, D.O.T. numbers, O.E. numbers, and information about salaries, educational requirements, and career advancement opportunities); competencies for cluster areas and for job titles, stated as behavioral objectives; a core course outline (a representative sample of how a curriculum should be constructed, including references); sample teaching plans designed for one to five days in length (comprising cluster areas, unit titles, problem areas, a brief introduction, student performance objectives, a detailed outline of instructional content, learning activities, special materials and equipment, and student references). Also included are: specific and selected references; a brief description of school facilities; lists of equipment, supplies, and audiovisual materials; and a partial list of ways to increase teacher competencies. (BP)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED116009

Agricultural Products / Program Planning Guide

funded by:
Illinois Office of Education
in cooperation with:
Southern Illinois University, Carbondale

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

CE005918

AG

Volume IV

PROGRAM PLANNING GUIDE IN AGRICULTURAL PRODUCTS

Guide Author

Dr. Richard Welton
Department of Agricultural Industries
Southern Illinois University at Carbondale
&
Mr. Sam Robb
Agricultural Occupations Instructor
Pinckneyville High School

Project Director

Dr. Thomas R. Stitt
Southern Illinois University

Project Title

Development of Teachers' Guide and Students' Instructional Materials for Seven Selected Applied Biological and Agricultural Occupation Related Areas (PCB-A5-031)

Produced as a result of a contractual agreement managed by:

Professional & Curriculum Development Unit
Board of Vocational Education & Rehabilitation
Division of Vocational & Technical Education

in cooperation with:

Agricultural Industries Department
School of Agriculture
Southern Illinois University
Carbondale, IL 62901

Date

June 30, 1975

TABLE OF CONTENTS

	Page
General Introduction	1
Introduction to Agricultural Products Occupational Program Planning Guide	7
Sample Cluster Areas and Job Titles	9
Sample Job Descriptions	10
Competencies for Cluster Areas	14
Competencies for Job Titles	33
Core Course Outline for Agricultural Products	60
Exemplary Teaching Plans	71
References: Specific References	91
Selected References	95
School Facilities, Equipment, and Supplies	97
Audio Visual Sources and Materials	102
Teacher Competencies and Training Available	103

INTRODUCTION

The Program Planning Guides were written to assist the Applied Biological and Agricultural Occupations teacher in enriching the existing programs and/or to provide the basis for expansion of offerings to include an additional agricultural cluster area. For example, the current offering may be Agricultural Production with Agricultural Mechanics, and Agricultural Supplies and Services is to be added to the offering.

These guides are the result of a funded project coordinated by the Professional and Curriculum Development Unit, Division of Vocational and Technical Education, Board of Vocational Education and Rehabilitation in cooperation with the Agricultural Industries Department, Southern Illinois University, Carbondale, during the FY 1975. The project was entitled "Development of Teachers' Guide and Student Instructional Materials for Seven Selected ABAO (Applied Biological and Agricultural Occupations) Related Areas." The seven ABAO areas selected include:

1. Agricultural Production - O.E. Code 01.0100
2. Agricultural Supplies and Services - O.E. Code 01.0200
3. Agricultural Mechanics - O.E. Code 01.0300

4. Agricultural Products - O.E. Code 01.0400
5. Ornamental Horticulture - O.E. Code 01.0500
6. Agricultural Resources - O.E. Code 01.0600
7. Forestry - O.E. Code 01.0700

Major division, cluster area, and job titles were written with O.E. numbers, and only an occasional reference to D.O.T. The O.E. code was selected in that teachers in Illinois classify all of their students under this system.

The provisions of the SIU/C-DVTE project provided an opportunity for participation from throughout the Illinois Applied Biological and Agricultural Occupations staff. Each member contributed in his unique way, and they represent each of the four institutions which train DVTE staff, V.A.S., and ABAO teachers in community colleges and high schools.

The projects activities were coordinated by a Steering Committee. All major decisions on content, format, job titles, and final draft approval were the responsibility of the steering committee. They spent considerable time and effort in reviewing these guides. The steering committee was composed of the following members:

Name	ABAO Project Contribution
Mr. Lonnie Hart Assistant Coordinator DVTE Springfield, IL 62706	Chairman-Steering Committee
Mr. G. D. Coil Head Consultant, ABAO-DVTE Springfield, IL 62706	Steering Committee

Name	ABAO Project Contribution
Mr. Allan Utech Consultant, ABAO-DVTE Springfield, IL 62706	Steering Committee
Dr. Ed Breese Agriculture Department Western Illinois University Macomb, IL 61455	Steering Committee
Mr. P. E. Cross ABAO Instructor McLeansboro Community Unit McLeansboro, IL 62859	Steering Committee
Mr. Kyle Wittler Coordinator, Ag Business Parkland College 2400 West Bradley Champaign, IL 61820	Steering Committee
Dr. John Matthews Head Vocational Agriculture Service 434 Mumford Hall University of Illinois Urbana, IL 61801	Steering Committee

The project staff in alphabetical order are as follows:

Name	ABAO Project Contribution
Dr. Benton K. Bristol Associate Professor Department of Agriculture Illinois State University Normal, IL 61761	Agricultural Mechanics Guide Author
Dr. William A. Doerr Assistant Professor and Assistant Dean School of Agriculture Southern Illinois University at Carbondale Carbondale, IL 62901	Forestry Guide Co-Author
Mr. Carl German Graduate Student Agriculture Education Southern Illinois Univeristy at Carbondale Carbondale, IL 62901	Agricultural Resources Co-Author

Name	ABAO Project Contribution
Dr. L. R. Hilterbrand Division Chairman Agriculture Resources Shawnee College Road Ullin, IL 62992	Agricultural Resources Guide Co-Author
Mr. Michael Marks ABAO Teacher Farina LaGrove Community Unit Farina, IL 62838	Agricultural Supply and Service Guide Co-Author
Mr. B. L. Rich Division Chairman Agriculture Department Lake Land College Mattoon, IL 61938	Co-Author of Agricultural Production
Mr. Sam Robb ABAO Instructor Pinckneyville Community Unit Pinckneyville, IL 62274	Agricultural Projects Guide Co-Author
Mr. Roger Ross Applied Biological and Agriculture Occupations New Lenox, IL 60451	Ornamental Horticulture Co-Author
Dr. Thomas Stitt Professor Agricultural Industries Department Southern Illinois University at Carbondale Carbondale, IL 62901	Project Director, Agricultural Resources, Ornamental Horticulture, and Forestry Co-Author
Dr. Richard Welton Assistant Professor Agricultural Industries Department Southern Illinois University at Carbondale Carbondale, IL 62901	Agriculture Supply and Service and Agriculture Products Guides Co-Author
Dr. Eugene Wood Professor and Chairman Agricultural Industries Department Southern Illinois University at Carbondale Carbondale, IL 62901	Agricultural Production Guide Author and Principal Investigator of Project

Each guide includes the follcwing component parts.

Introduction Unique consideration for the subject matter area.

Sample Job Titles and Cluster Areas This includes information about salary, education requirements and career advancement opportunities. These job titles and cluster areas are coordinated with a brochure entitled "Applied Biological and Agricultural Occupations Career Directory" published by the Division of Vocational and Technical Education, 1035 Outer Park Drive, Springfield, IL.

Competencies for Cluster Areas and Competencies for Job Titles The competencies, stated in measurable terms, are presented by cluster areas and job titles.

Core Course Outline The core course outline is a representative sample of how a curriculum could be constructed to present the program.

Exemplary Teaching Plans This is a section which incorporates teaching plans for selected units in the outline. Their function is to provide sample plans which the ABAO teacher may follow in developing his respective units.

Reference The references are coded into the teaching plan and listed with their source in the reference section.

School Facilities, Equipment, and Supplies This provides the ABAO teacher with a source for major items which will be required to operate the program.

Audio Visual Materials This is a listing of currently available visual materials for use in teaching the respective subject matter areas.

Teachers Competencies and Training Available This is a brief review of sources where the teacher could secure additional skills to assist in delivering a quality program.

These Program Planning Guides were prepared to improve the quality and increase the scope of Applied Biological and Agricultural Occupations offerings available in Illinois. The Guides can only be successful with your review, adaption, adoption, and implementation.

INTRODUCTION TO AGRICULTURAL PRODUCTS

The term agricultural products is defined by the U.S. Office of Education as "a combination of subject matter and learning experiences designed to teach basic principles and management decisions involved in the science and technology of farm products, including marketing, inspection, and processing food and non-food products." For the purpose of this program planning guide, the area of food products will be developed. In Illinois, this area is representative of the state's agriculture. Cluster areas representing agricultural food products include: 1) meat and meat by-products; 2) dairy processing; 3) fruit and vegetable processing; 4) grain and grain by-products. Representative job titles were selected for each of the cluster areas. Office of Education code numbers are listed for each job title to assist the agricultural occupations teacher in locating additional information about agricultural products or specific job titles.

Competencies developed for the cluster areas and job titles are stated in measurable terms. The cluster area competencies are broad based while those for job titles are written more specifically and includes those competencies the student should master for entry level employment. The competencies shown in this guide are not meant to be complete, but rather to be representative of student needs. The

agricultural occupations teacher will want to consult his advisory council and area food product processors to expand the competency lists. In this way, competencies can be tailored to meet the needs of individual students.

The evaluation procedures suggested in the measurable objectives are examples of those that could be used. It is essential that the student know what is expected and the level of accomplishment expected to be attained. The teacher should choose the evaluation technique appropriate to the situation.

A core course outline with selected references was developed from the most commonly identified cluster area job title competencies. The instructor can apply the core course outline to the particular enterprise or job title that meets the needs of the students. References listed in the core course outline are by no means complete. The teacher should select those areas in the core course outline that will be most frequently used and develop additional lesson plans.

Information contained in this program planning guide reflect input from food processing people. No attempt was made to be original in all materials included in this guide. Of great value in determining competencies and content contained herein were curriculum guides and instructional materials from Southern Illinois University, University of Illinois, The Ohio State University, University of Kentucky, Iowa State University, and Pennsylvania State University.

SAMPLE CLUSTER AREAS AND JOB TITLES

In this program planning guide, four cluster areas are identified in Agricultural Products along with representative job titles in each area.

Meat and Meat By-Products

- Livestock Buyer
- Livestock Inspector
- Butcher

Dairy Processing

- Dairy Sanitation Aide

Fruit and Vegetable Processing

- Canning and Processing Maintenance Employee

Grain and Grain By-Products

- Cereal Grain Grader
- Oil Seed Scale Operator
- Grain Trucker

JOB DESCRIPTIONS

MAJOR JOB TITLE:	Livestock Buyer
O. E. NUMBER:	01.04010100
LOCATION:	Would begin as an assistant buyer or as a yardman.
SALARY:	$650.00 per month or $7,700 per year and would increase as ability does.
EDUCATION:	High school diploma usually required. Two year degree from a community college desirable.
CAREER ADVANCEMENT:	Head Species Buyer Country Buyer Head Buyer Self-employment is also possible

MAJOR JOB TITLE:	Livestock Inspector
O. E. NUMBER:	01.04010100
LOCATION:	A student interested in meat inspection would contact the Illinois Department of Agriculture to take a Civil Service exam. If passed with a satisfactory score, the applicant would be interviewed and if accepted would begin as on-the-job trainee for a 6-week period. After a 2-week training school, the applicant would then be assigned as an inspector.
SALARY:	As Meat Inspector #1, the annual salary is $8,400 and could advance to $11,280. All employees have federal holidays off, plus sick pay, and a paid insurance program

EDUCATION:	A high school education is usually required. Training classes are available throughout the state of Illinois.
CAREER ADVANCEMENT:	Meat Inspector #2 Regional Supervisor Federal Meat Inspector

MAJOR JOB TITLE:	Meat Cutter Apprentice
O. E. NUMBER:	01.04010100
LOCATION:	The student would begin first as a cutter.
SALARY:	Beginning at $4.00 per hour, or $7,680 per year.
EDUCATION:	A high school diploma is usually required. A two year degree from a community college is desirable.
CAREER ADVANCEMENT:	Journeyman Meat Cutter Meat Department Manager Retail Store Manager Store Meat Buyer Self-employment is possible

MAJOR JOB TITLE:	Dairy Sanitation Aide
O. E. NUMBER:	01.04010200
LOCATION:	A student interested in sanitation work would begin as an aide.
SALARY:	$3.65 per hour or $7,600 per year.
EDUCATION:	A high school diploma is usually required. A two year degree from a community college is desirable.
CAREER ADVANCEMENT:	Department Head Plant Sanitation Foreman

MAJOR JOB TITLE:	Canning and Processing Maintenance Employee
O. E. NUMBER:	01.04010300
LOCATION:	Assistant maintenance employee
SALARY:	$3.60 per hour or $7,500 per year.
EDUCATION:	A high school diploma is usually required. Two-year degree from a community college is desirable.
CAREER ADVANCEMENT:	Assistant Maintenance Manager Maintenance Manager

MAJOR JOB TITLE:	Grain Grader Aide
O. E. NUMBER:	01.04010400
LOCATION:	Would begin as an aide.
SALARY:	$625.00 per month or $7,500 per year.
EDUCATION:	A high school diploma is usually required. Two-year degrees from a community college can be obtained.
CAREER ADVANCEMENT:	Grader

MAJOR JOB TITLE:	Oil Seed Scale Operator Aide
O. E. NUMBER:	01.04010500
LOCATION:	A student interested in becoming a scale operator would begin as an aide.
SALARY:	$660.00 per month or $8,000 per year.
EDUCATION:	A high school diploma is usually required.
CAREER ADVANCEMENT:	Scale Operator

MAJOR JOB TITLE:	Tractor Trailer Grain Trucker
O. E. NUMBER:	01.040104
LOCATION:	Drivers helper or in the warehouse.
SALARY:	$5.00 per hour or $10,000 per year. This will vary by company, size of truck, and product hauled.
EDUCATION:	A high school diploma is usually required. Technical schools are available to train drivers.
CAREER ADVANCEMENT:	Local Delivery Driver Over-The-Road Driver

COMPETENCIES FOR CLUSTER AREAS

IV. Agricultural Products

A. Meat and Meat By-Products

1. Identification

EE a. After receiving class instruction, the student will be able to identify the meat producing species of livestock with 100 percent accuracy.

DA b. After receiving class instruction, the student will be able to recognize the wholesale cuts of meat producing animals with 100 percent accuracy.

DA c. After receiving class instruction, the student will be able to recognize the retail cuts of meat producing animals with 100 percent accuracy.

DA d. After completing on-the-job training, the student will be able to recognize the parts (organs, muscles, bones, and glands) of meat producing animals with 100 percent accuracy.

DA e. Given livestock to be purchased, the student will be able to interpret brands, tatoos, ear marks, and/or tags with 100 percent accuracy.

DA f. When asked, the student will be able to discuss the different methods of meat storage to the satisfaction of the instructor.

DA g. When asked, the student will be able to describe methods of curing meats to the satisfaction of the instructor.

KEY: EE-ESSENTIAL for ENTRY
DA-DESIRABLE for ADVANCEMENT

DA h. Before a group, the student will be able to explain the entire meat processing line from the producer to the consumer to the satisfaction of the instructor.

7. Selection

DA a. Given company authorization, the student will be able to purchase sufficient numbers of livestock to fill the order according to sales meeting recommendations.

DA b. Given a pen of livestock, the student will be able to estimate weight, grade, and other factors affecting livestock value in a manner conforming to company standards.

DA c. Given a pen of livestock, the student will be able to sort those livestock by weight and grade without error.

DA d. After analyzing market trends, the student will be able to purchase cattle at prices which will conform to company requirements.

DA e. When purchasing livestock, the student will be able to purchase livestock which will return a profit to the company.

DA f. During an auction, the student will be able to bid for livestock with 100 percent accuracy.

DA g. Given a pen of livestock, the student will be able to estimate and figure shrinkage of livestock with 95 percent accuracy.

DA h. Given the opportunity, the student will demonstrate problem solving ability by working related mathematical problems with 95 percent accuracy.

DA i. Given the wholesale cuts of pork, beef, and lamb, the student will be able to identify all of the wholesale cuts of pork, beef, and lamb with 100 percent accuracy.

DA j. Given retail cuts of pork, beef, and lamb, the student will be able to identify these cuts without error.

DA k. In a simulated situation, the student will be able to describe the slaughter classes of swine, beef, and lamb, stating the characteristics of each without error.

DA l. In a simulated situation, the student will be able to describe the market grades of swine, beef, and lamb, stating the characteristics of each without error.

DA m. Given commonly used cleaners and sanitizers, the student will be able to select the correct one for use according to the manufacturers' specifications.

DA n. When asked, the student will be able to give carcass quality measurements for beef, swine, and lamb to stockmen without error.

DA o. When asked, the student will be able to analyze carcass cut-out data of livestock and be able to interpret that data to stockmen without error.

3. Inspection

DA a. Placed in a meat processing plant, the student will be able to perform an antimortum inspection which will conform to meat and poultry inspection regulations of the U.S.D.A.

DA b. After receiving class instruction on reproduction, the student will be able to describe the physical body changes that occur in meat producing animals before, during, and after pregnancy in a manner agreeing with standard reference.

DA c. After receiving class instruction, the student will give requirements for quarantine of diseased animals in accordance with the meat and poultry inspection regulations of the U.S.D.A.

DA d. Given condemned livestock and/or carcasses, the student will be able to supervise their disposal in a manner conforming to meat and poultry inspection regulations of the U.S.D.A.

DA e. After receiving class instruction, the student will be able to evaluate sanitary measures for a slaughtering and meat processing operation which will be in accordance with the meat and poultry inspection regulations of the U.S.D.A.

DA f. After receiving class instruction, the student will be able to recognize abnormalities of animal parts (bone, muscle, organs, and glands) in a manner conforming with the meat and poultry inspection regulations of the U.S.D.A.

DA g. Given samples of government grading and inspection stamps, the student will be able to recognize each without error.

DA h. Placed in a meat processing plant, the student will be able to supervise the correct use and placement of labeling information (product name, ingredient legend, and special handling) on meat containers in a manner conforming to the meat and poultry inspection regulations of the U.S.D.A.

DA i. After completing on-the-job training, the student will be able to perform a pre-operational sanitation inspection which will conform to the Sanitation Handbook of the U.S.D.A.

DA j. When asked by plant management, the student will be able to help the management develop a sanitation program that is physically, chemically, and microbiologically clean.

4. Feeding and care

DA a. Given market livestock, the student will be able to care for these animals while they are awaiting slaughter in a manner acceptable to the supervisor.

DA b. After buying livestock, the student will be able to supervise loading of livestock so that transportation losses will be less than 2 percent for hogs, 5 percent for cattle, and 6 percent for sheep.

DA c. Given a publication on withdrawal time of feed additives before livestock slaughter, the student will be able to interpret time requirements for each feed and livestock species as specified by the U.S.D.A.

5. Manual skills and machinery and equipment operation

DA a. Given livestock scales and livestock to weigh, the student will be able to operate the scales accurately within prescribed limits.

DA b. Given finished products, the student will be able to check the accuracy of product weight to assure compliance with meat and poultry inspection regulations of the U.S.D.A.

DA c. Given a checkwriter, the student will be able to write checks for purchased livestock without error.

DA d. Given a cash register, the student will be able to collect money for meat sales, and make correct change without error.

DA e. Given a calculator, the student will be able to operate the calculator with 100 percent accuracy.

DA f. After receiving instruction in the operation of cooling and humidity control equipment, the student will be able to adjust and operate this equipment according to manufacturers' specifications.

DA g. Given knives, grinders, slicers, hand saws, and mechanical saws, the student will be able to correctly identify each piece of equipment without error.

DA h. Given knives, grinders, slicers, hand saws, and mechanical saws, the student will be able to demonstrate the correct use of each to the satisfaction of the supervisor.

DA i. Given the proper lubricating materials, the student will be able to lubricate meat cutting and handling equipment as prescribed in the operator's manual.

6. Animal health

DA a. Given a pen of livestock, the student will be able to observe the livestock for signs of illness in a manner prescribed by company policy.

DA b. After observing class demonstration, the student will be able to take body temperature of meat producing animals without error.

DA c. After receiving class instruction, the student will be able to recognize the symptoms of common diseases of meat producing animals as described in a standard livestock reference.

DA d. Given certificates stating withholding and/or withdrawal of feed additives, the student will be able to check those certificates for proper withdrawal time of feed additives in accordance with U.S.D.A. regulations.

DA e. After receiving class instruction, the student will be able to recognize the symptoms of parasitic infestations of meat producing animals in a manner prescribed in a standard text.

DA f. After receiving class instruction in nutrition, the student will be able to recognize nutritional deficiency symptoms of meat producing animals in a manner prescribed in a standard text.

DA g. Given a truck load of livestock, the student will be able to receive the livestock and check inspection papers for the livestock in a manner specified by the company.

7. Record keeping

DA a. Placed in a meat cutting department, the student will be able to take inventory of wholesale and retail meat cuts without error.

DA b. In a simulated situation, the student will be able to take inventory of livestock in the employer's yards with 100 percent accuracy.

DA c. At closing time, the student will be able to summarize purchases made that day without error.

DA d. Upon completing a pre-operational sanitation inspection, the student will be able to complete a sanitation report in triplicate in accordance with the Sanitation Handbook of the U.S.D.A.

8. Marketing

DA a. Given the proper packaging materials, the student will be able to select the correct packaging materials and wrap the product to meet store display standards.

DA b. Given prices per pound for selected cuts of meat and weight of the cut, the student will be able to accurately price each package without error.

DA c. When asked by a customer, the student will be able to cut special meat orders to the satisfaction of the customer.

DA d. After class instruction, discussion, and on-the-job training in consumer demands, the student will be able to organize a meat display case that will meet store standards.

9. Human Relations

DA a. At all times, the student will be able to converse with prospective livestock sellers, in a manner acceptable to company policy.

DA b. Upon determining requirements and competencies needed to enter a job, the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirements needed for entry in that job.

EE c. While preparing for an occupation in agriculture products, the student will be able to conduct self-evaluation of physical appearance, speech and conversation, and personality as it relates to relations with other persons to the satisfaction of the supervisor.

DA d. While working with agricultural products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production initiative, and cooperation.

DA e. After receiving information about job legal requirements, the student will be able to show understanding of laws pertaining to the job by passing an examination with 90 percent accuracy.

10. Language skills

EE a. When meeting and working with employers, fellow employees or supervisors, the student will be able to communicate effectively orally or in writing with these persons to the satisfaction of the teacher and/or employer.

EE b. After receiving instructions in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

B. Dairy Processing

1. Identification

DA a. Placed in a processing plant, the student will be able to identify commonly used cleaners and sanitizers with 100 percent accuracy.

DA b. Placed in a processing plant, the student will be able to identify milk processing and inspection equipment used in the plant without error.

2. Selection

DA a. Given commonly used cleaners and sanitizers, the student will be able to select the correct sanitizer according to plant sanitation standards.

3. Inspection

DA a. Given sampling data, the student will be able to evaluate the data according to standards listed in fluid milk and fluid milk products regulations.

DA b. Placed in a processing plant, the student will be able to inspect the plant and plant equipment to insure compliance with fluid milk and fluid milk products regulations.

4. Testing

DA a. Given a tanker filled with raw milk, the student will be able to obtain representative raw milk samples in accordance with fluid milk and fluid milk products regulations.

DA b. Given a milk sample, the student will be able to test the sample for bacteria count, coliform determination, and phosphatase in accordance with fluid milk and fluid milk products regulations.

DA c. Given the opportunity, the student will be able to demonstrate problem solving ability by working related mathematical problems with 90 percent accuracy.

5. Manual skills and equipment and machinery operation

DA a. Placed in a processing plant, the student will be able to operate a centrifuge according to the operator's manual.

DA b. Given a sample of processed milk, the student will be able to cool the milk to prevent spoilage in accordance with fluid milk and fluid milk products regulations.

DA c. Given raw milk to be stored, the student will be able to adjust temperature of storage tanks to maintain milk quality in accordance with fluid milk and fluid milk products regulations.

DA d. Using a clean-in-place system, the student will be able to clean and sanitize milk tankers in a manner agreeing with the operator's manual.

DA e. Placed in a processing plant, the student will be able to pasturize milk so that it will pass a phosphatase test for quality at a level meeting plant standards and fluid milk and fluid milk products regulations.

6. Sanitation

DA a. Placed in a processing plant, the student will be able to clean and sanitize dairy processing equipment in a manner conforming to plant sanitation standards as well as state and federal sanitation standards.

DA b. Given commonly used cleaners and sanitizers, the student will be able to mix them for use according to directions on the container.

7. Record keeping

DA a. Placed in a processing plant, the student will be able to keep records of milk testing as required by plant regulations.

DA b. Placed in a processing plant, the student will be able to keep an inventory of supplies on hand in a manner conforming to plant standards.

8. Human relations

DA a. Upon determining requirements and competencies needed to enter a job, the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirements needed for entry in that job.

DA b. While preparing for an occupation in agricultural products, the student will be able to conduct self-evaluation of physical appearance, speech and conversation, and personality as it relates to relations with other persons to the satisfaction of the supervisor.

DA c. While working in agricultural products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production, initiative, and cooperation.

9. Language skills

DA a. When meeting and working with employers, fellow employees, or supervisors, the student will be able to communicate effectively orally or in writing with these persons to the satisfaction of the teacher and/or employer.

DA b. After receiving instructions in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

C. Fruit and Vegetable Processing

1. Identification

DA a. Placed in a processing plant, the student will be able to identify all of the fruits and vegetables processed in the plant without error.

DA b. Placed in a processing plant, the student will be ably to identify all of the finished products processed by the plant without error.

DA c. In a simulated situation, the student will be able to identify each piece of equipment found in the processing plant without error.

DA d. Placed in a processing plant, the student will be able to identify supplies used by maintenance with 100 percent accuracy.

2. Selection

DA a. Placed in a processing plant, the student will be able to select equipment needed to perform specific jobs of maintenance which will meet specifications of the plant.

3. Inspection

DA a. Given washing, trimming, peeling, cutting, blanching, filling, closing, and cooking equipment, the student will be able to inspect each machine for defects and make necessary repairs according to the operators' manuals.

4. Manual skills and equipment and machinery operation

DA a. Given washing, trimming, peeling, cutting, blanching, filling and closing, and cooking equipment, the student will be able to select the correct lubricating materials to lubricate each machine according to the operators' manuals.

DA b. Placed in a canning and processing plant, the student will be able to perform minor repairs and maintain electrical wiring, electrical motors, and electrical controls in a manner conforming to local codes and the National Electrical Code.

DA c. Given washing, trimming, peeling, cutting, blanching, filling, and closing equipment, the student will be able to set up a maintenance schedule for each machine which will agree with the operator's manual of each machine.

DA d. Placed in a processing plant, the student will be able to repair and maintain the plumbing of the plant in a manner conforming to local plumbing codes.

DA e. When repairs are needed, the student will be able to repair and maintain the physical structure of the building in a manner complying with building safety codes.

DA f. Placed in a processing plant, the student will be able to follow a work order given by the foreman and complete the job in a manner acceptable to the foreman.

DA g. Given proper tools, parts, and materials, the student will be able to make minor repairs on plant washing, trimming, peeling, cutting, blanching, filling and closing, and cooking equipment according to the operators' manuals.

DA h. Placed in a processing plant, the student will be able to operate each piece of equipment in the plant in a manner prescribed in the operators' manual of each machine.

DA i. Given the opportunity, the student will demonstrate problem solving ability by working related mathematical problems with 95 percent accuracy.

5. Record keeping

DA a. Placed in a processing plant, the student will be able to keep maintenance records on each machine in the plant in a manner recommended in the operators' manuals.

6. Human relations

DA a. After receiving information about job legal requirements, the student will be able to show understanding of laws pertaining to the job by passing an examination with 90 percent accuracy.

DA b. Upon determining requirements and competencies needed to enter a job, the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirements needed for entry in that job.

DA c. While preparing for an occupation in agriculture products, the student will be able to conduct a self-evaluation of physical appearance, speech and conversation, and personality as it relates to relations with other persons to the satisfaction of the supervisor.

DA d. While working in agricultural products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production, initiative, and cooperation.

7. Language skills

DA a. When meeting and working with employers, fellow employees, or supervisors, the student will be able to communicate effectively orally or in writing with these persons to the satisfaction of the teacher and/or supervisor.

DA b. After receiving instructions in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

D. Grain and Grain By-Products

1. Identification

EE a. Given samples of common crop seeds, the student will be able to identify these seeds with 100 percent accuracy.

DA b. Given samples of weed seeds, the student will be able to identify these seeds with 100 percent accuracy.

DA c. Given a list containing names of weeds, the student will be able to divide the list into noxious and non-noxious weeds with 100 percent accuracy.

DA d. When operating a truck loaded with grain, the student will be able to be familiar with state regulations pertaining to legal load capacity of that vehicle.

DA e. With a stalled vehicle on the highway, the student will be able to set out flags and flares according to state regulations.

2. Selection

DA a. Given a truck and load for delivery, the student will be able to select and follow the best route and arrive at the correct destination within a time considered reasonable by the supervisor.

DA b. Given a sampling tube, the student will be able to use it to obtain a sample of grain from a bin, train car, or truck in a manner prescribed by the U.S.D.A.

3. Inspection

DA a. Given a truck, the student will be able to inspect the vehicle and prepare a report on its condition before and after each trip according to safety standards set up by the company and the Department of Transportation.

DA b. When approaching a Department of Transportation check point, the student will comply with procedures for vehicle inspection as specified by the Department of Transportation.

DA c. Given the opportunity, the student will demonstrate problem solving ability to work related mathematical problems with 90 percent accuracy.

DA d. In a simulated situation, the student will be able to give accurately the standard test weights for all grains listed in a standard text.

DA e. Given a load of grain to sample, the student will be able to evaluate the sample in a manner prescribed by the U.S.D.A.

DA f. Given a composite grain sample, the student will be able to place the sample into the sampling bag without error.

DA g. In a simulated situation, the student will be able to repeat the characteristics of each grade of market corn, wheat, beans, and other grain crops with 100 percent accuracy.

DA h. Given a seed tag, the student will be able to evaluate the contents in a manner agreeing with the Illinois Department of Agriculture.

DA i. Given samples of grain, the student will be able to examine them and determine defects such as sourness, mustiness, heat damage, and cracked or broken grain with 100 percent accuracy.

DA j. Given samples of corn, wheat, soybeans, and other grain crops, the student will be able to place each into the correct grade according to U.S.D.A. standards.

4. Manual skills and machinery and equipment operation

DA a. Given terms of the industry such as: gross weight, tare, grade, yardage, net weight, the student will show knowledge of these terms by applying them correctly.

DA b. Given a scale set equipped with an automatic ticket recorder, the student will be able to insert the ticket into the recorder with 100 percent accuracy.

DA c. Given a citizens band radio, the student will be able to operate it in a manner prescribed by the Federal Communications Control.

DA d. Given a set of scales, the student will be able to calibrate the scales, according to operating instructions.

DA e. Given a set of scales, the student will be able to balance the scale set before weighing in a manner conforming to Department of Agriculture regulations.

DA f. Given a set of scales, the student will be able to determine gross weight with 100 percent accuracy.

DA g. Given a grain scale, the student will be able to operate the scales with 100 percent accuracy.

DA h. Given a grain sample and a Boeroner Divider, the student will be able to determine percent foreign material according to U.S.D.A. procedures.

DA i. Given a grain sample and scales, the student will be able to determine test weight of the sample in a manner prescribed by U.S.D.A. regulations.

DA j. Given a grain sample and a moisture tester, the student will be able to determine per cent moisture according to operator's manual.

DA k. Given a calculator, the student will be able to operate the calculator with 100 percent accuracy.

DA l. When operating a truck, the student will be able to maintain control of the vehicle while backing up to the loading dock without damaging the vehicle, other vehicles, other equipment, or other workers.

DA m. When operating a truck, the student will be able to maneuver corners, turns, and narrow passageways without running over curbs, signs, or nitting other vehicles or buildings.

DA n. When operating a truck loaded with grain, the student will be able to unload the vehicle as outlined in the vehicle's operator manual and as regulated by the unloading dock.

DA o. Given a loaded truck and bill of lading, the student will be able to deliver the freight to the desired location accounting for the load with 100 percent accuracy.

DA p. When required, the student will be able to operate conveyors and augers to load and unload the vehicle in a manner prescribed by the operator's manual.

DA q. When required, the student will be able to complete minor mechanical repairs needed to keep the vehicle in condition to pass a Department of Transportation check point.

DA r. When operating a truck, the student will be able to maintain the vehicle so that it will be able to pass a Department of Transportation check point.

DA s. Given gross weight and tare, the student will be able to figure net weight without error.

DA t. Given shipping orders, the student will be able to read and interpret the orders in a manner specified by the company.

DA u. Given a weighing ticket and scale set, the student will be able to complete the ticket without error.

DA v. Given a composite grain sample in a sampling bag, the student will be able to properly tag the sample with 100 percent accuracy.

5. Record keeping

DA a. Given a log book, the student will be able to keep records concerning the vehicle and loads carried as required by the company.

DA b. Given a graded sample of grain, the student will be able to correctly record grade of sample and keep record of work performed without error.

DA c. Given an operator inspection report, the student will be able to complete the report without error.

DA d. Given a ledger book, the student will be able to record information into the ledger without error.

6. Human relations

DA a. Upon determining requirements and competencies needed to enter a job,

the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirements needed for entry in that job.

DA b. While preparing for an occupation in agricultural products, the student will be able to conduct a self-evaluation of physical appearance, speech and conversation, and personality as it related to relations with other persons to the satisfaction of the supervisor.

DA c. While working in agricultural products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production, initiative, and cooperation.

DA d. After receiving information about job legal requirements, the student will be able to show understanding of laws pertaining to the job by passing an examination with 90 percent accuracy.

7. Language skills

DA a. When meeting and working with employers, fellow employees or supervisors, the student will be able to communicate effectively orally or in writing with these persons to the satisfaction of the teacher.

DA b. After receiving instruction in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

IV. Agricultural Products

A. Meat and Meat By-Products

Livestock Buyer

1. Identification

DA a. Given livestock to be purchased, the student will be able to interpret brands, tattos, ear marks, and/or tags with 100 percent accuracy.

EE b. After receiving instruction, the student will be able to identify the meat producing species of livestock without error.

2. Selection

DA a. Given company authorization, the student will be able to purchase sufficient numbers of livestock to fill the order according to sales meeting recommendations.

DA b. Given a pen of livestock, the student will be able to estimate weight, grade, and other factors affecting livestock value in a manner conforming to company standards.

DA c. Given a pen of livestock, the student will be able to sort those livestock by weight and grade without error.

DA d. After analyzing market trends, the student will be able to purchase cattle at prices which will conform to company requirements.

KEY: EE-ESSENTIAL for ENTRY
DA-DESIRABLE for ADVANCEMENT

DA e. When purchasing livestock, the student will be able to purchase livestock which will return a profit to the company.

DA f. During an auction, the student will be able to successfully bid for livestock.

DA g. Given a pen of livestock, the student will be able to estimate and figure shrinkage of livestock with 95 percent accuracy.

DA h. Given the opportunity, the student will demonstrate problem solving ability by working related mathematical problems with 95 percent accuracy.

DA i. When asked, the student will be able to give carcass quality measurements for beef, swine, and lamb to stockmen without error.

DA j. When asked, the student will be able to analyze carcass cut-out data of livestock and be able to interpret that data to stockmen without error.

3. Feeding and care

DA a. Given market livestock, the student will be able to care for these animals while they are awaiting slaughter in a manner recommended by company standards.

DA b. Given a publication on withdrawal time of feed additives before livestock slaughter, the student will be able to interpret time requirements for each feed and livestock species as specified by the U.S.D.A.

4. Manual skills and machinery and equipment operation

DA a. Given livestock scales and livestock to weigh, the student will be able to operate the scales accurately within prescribed limits.

DA b. Given a checkwriter, the student will be able to write checks for purchased livestock without error.

DA c. Given a calculator, the livestock buyer will be able to operate the calculator with 100 percent accuracy.

5. Animal health

DA a. After receiving classroom instruction in nutrition, the student will be able to recognize nutritional deficiency symptoms of meat producing animals in a manner prescribed by a standard text.

DA b. Given a pen of livestock, the student will be able to observe livestock for signs of illness in a manner acceptable to the supervisor.

DA c. Given a truck load of livestock, the student will be able to receive the livestock and check inspection papers for the livestock in a manner specified by the company.

DA d. After receiving classroom instruction, The student will be able to recognize the symptoms of common diseases of meat producing animals as described in a standard livestock reference.

DA e. After receiving class instruction, the student will be able to recognize the symptoms of parasitic infestations of meat producing animals in a manner prescribed by a standard text.

DA f. After observing a classroom demonstration, the student will be able to take body temperature of meat producing animals without error.

DA g. Given certificates stating withholding and/or withdrawal of feed additives, the student will be able to check certificates for proper time withdrawal of feed additives in accordance with U.S.D.A. regulations.

6. Record keeping

DA a. In a simulated situation, the student will be able to take inventory of livestock in the employer's yards with 100 percent accuracy

DA b. At closing time, the student will be able to summarize purchases made that day without error.

7. Human relations

DA a. At all times, the student will be able to converse with prospective livestock sellers, in a manner acceptable to company policy.

DA b. Upon determining requirements and competencies needed to enter a job, the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirements needed for entry in that job.

EE c. While preparing for an occupation in agricultural products, the student will be able to conduct a self-evaluation for physical appearance, speech and conversation, and personality as it relates to relations with other persons to the satisfaction of the supervisor.

DA d. While working in agriculture products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production, initiative, and cooperation.

DA e. After receiving information about job legal requirements, the student will be able to show understanding of laws pertaining to the job by passing an examination with 90 percent accuracy.

8. Language skills

EE a. When meeting and working with employers, fellow employees or supervisors, the student will be able to communicate effectively orally or in writing with these persons to the satisfaction of the teacher and/or employer.

EE b. After receiving instructions in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

IV. Agricultural Products

A. Meat and Meat By-Products

Livestock Inspector

1. Identification

EE a. After receiving classroom instruction, the student will be able to identify the meat producing species of livestock without error.

DA b. After completing on-the-job training, the student will be able to recognize the parts (organs, muscles, bones and glands) of meat producing animals without error.

DA c. After receiving classroom instruction, the student will be able to recognize the wholesale cuts of meat producing animals with 100 percent accuracy.

DA d. After receiving classroom instruction, the student will be able to recognize the retail cuts of meat producing animals with 100 percent accuracy.

2. Selection

DA a. Given the opportunity, the student will demonstrate problem solving ability to work related mathematical problems, with 95 percent accuracy.

DA b. Given the wholesale cuts of pork, beef, and lamb, the student will be able to identify all of the wholesale cuts of pork, beef, and lamb with 100 percent accuracy.

DA c. Given retail cuts of pork, beef, and lamb, the student will be able to identify these cuts without error.

DA d. In a simulated situation, the student will be able to describe the slaughter classes of swine, beef, and lamb, stating the characteristics of each without error.

DA e. In a simulated situation, the student will be able to describe the market grades of swine, beef, and lamb, stating the characteristics of each without error.

DA f. Given commonly used cleaners and sanitizers, the student will be able to select the correct one for use according to the manufacturers' specifications.

3. Inspection

DA a. Given samples of government grading and inspection stamps, the student will be able to recognize each with 100 percent accuracy.

DA b. After receiving classroom instruction, the student will be able to recognize abnormalities of animal parts (bone, muscle, organs, glands) in a manner conforming with the Meat and Poultry Inspection regulations of the U.S.D.A.

4. Feeding and care

DA a. Given a publication on withdrawal time of feed additives before livestock slaughter, the student will be able to interpret time requirements for each feed and livestock species as specified by the U.S.D.A.

5. Manual skills and equipment and machinery operation

DA a. Given finished products, the student will be able to check the accuracy of product weight to assure compliance with meat and poultry inspection regulations of the U.S.D.A.

6. Animal health

DA a. Given a pen of livestock, the student will be able to observe those livestock for signs of illness in a manner prescribed by company policy.

DA b. After observing a class demonstration, the student will be able to take body temperature of meat producing animals without error.

DA c. After receiving class instruction, the student will be able to recognize the symptoms of common diseases of meat producing animals as described in a standard livestock reference.

DA d. Given certificates stating withholding and/or withdrawal of feed additives, the student will be able to check those certificates for proper time withdrawal of feed additives in accordance with U.S.D.A. regulations.

DA e. After receiving class instruction, the student will be able to recognize the symptoms of parasitic infestations of meat producing animals in a manner prescribed by a standard text.

DA f. After receiving class instruction in nutrition, the student will be able to recognize nutritional deficiency symptoms of meat producing animals in a manner prescribed by a standard text.

7. Record keeping

DA a. Upon completing a pre-occupational sanitation inspection, the student will be able to complete a sanitation report in triplicate in accordance with the Sanitation Handbook of the U.S.D.A.

8. Human relations

DA a. Upon determining requirements and competencies needed to enter a job, the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirements needed for entry in that job.

DA b. While preparing for an occupation in agricultural products, the student will be able to conduct a self-evaluation of physical appearance, speech and conversation, and personality as it relates to relations with other persons to the satisfaction of the supervisor.

DA c. While working in agricultural products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production, initiative, and cooperation.

DA d. After receiving information about job legal requirements, the student will be able to show understanding of laws pertaining to the job by passing an examination with 90 percent accuracy.

9. Language skills

DA a. When meeting and working with employers, fellow employees or supervisors, the student will be able to communicate effectively orally or in writing with these persons to the satisfaction of the teacher.

DA b. After receiving instructions in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

Butcher

1. Identification

DA a. After receiving classroom instruction, the student will be able to recognize the retail cuts of meat producing animals with 100 percent accuracy.

DA b. After receiving classroom instruction, the student will be able to recognize the wholesale cuts of meat producing animals with 100 percent accuracy.

DA c. After completing on-the-job training, the student will be able to recognize the parts (organs, muscles, bones and glands) of meat producing animals without error.

DA d. When asked, the student will be able to discuss the different methods of meat storage to the satisfaction of the instructor.

DA e. When asked, the student will be able to explain the entire meat processing line from the producer to the consumer to the satisfaction of the instructor.

DA f. Before a group, the student will be able to explain the entire meat processing line from the producer to the consumer to the satisfaction of the instructor.

2. Selection

DA a. Given the opportunity, the student will demonstrate problem solving ability to work related mathematical problems, with 90 percent accuracy.

3. Inspection

DA a. Placed in a meat processing plant, the student will be able to perform an antimortum inspection which will conform to meat and poultry inspection regulations of the U.S.D.A.

DA b. After receiving class instruction on reproduction, the student will be able to describe the physical body changes that occur in meat producing animals before, during, and after pregnancy in a manner agreeing with a standard reference.

DA c. After receiving class instruction, the student will give requirements for quarantine of diseased animals in accordance with the meat and poultry inspection regulations of the U.S.D.A.

DA d. Given condemned livestock and/or carcasses, the student will be able to supervise their disposal in a manner conforming to meat and poultry inspection regulations of the U.S.D.A.

DA e. After receiving class instruction, the student will be able to evaluate sanitary measures for a slaughtering and meat processing operation which will be in accordance with the meat and poultry inspection regulations of the U.S.D.A.

DA f. After receiving class instruction, the student will be able to recognize abnormalities of animal parts (bone, muscle, organs, and glands) in a manner conforming with the meat and poultry inspection regulations of the U.S.D.A.

DA g. Given samples of government grading and inspection stamps, the student will be able to recognize each without error.

DA h. Placed in a meat processing plant, the student will be able to supervise the correct use and placement of labeling information (product name, ingredient legend, and special handling) on meat containers in a manner conforming to the meat and poultry inspection regulations of the U.S.D.A.

DA i. After completing on-the-job training, the student will be able to perform a pre-occupational sanitation inspection which will conform to the sanitation handbook of the U.S.D.A.

DA j. When asked by plant management, the student will be able to help the management develop a sanitation program that is physically, chemically, and microbiologically clean.

4. Manual skills and equipment and machinery operation

DA a. Given a cash register, the student will be able to collect money for meat sales, and make correct change without error.

DA b. Given a calculator, the student will be able to operate the calculator with 100 percent accuracy.

DA c. After receiving instruction in the operation of cooling and humidity control equipment, the student will be able to adjust and operate this equipment according to manufacturers' specifications.

DA d. Given knives, grinders, slicers, hand saws, and mechanical saws, the student will be able to correctly identify each piece of equipment without error.

DA e. Given knives, grinders, slicers, hand saws, and mechanical saws, the student will be able to demonstrate the correct use of each to the satisfaction of the supervisor.

DA f. Given the proper lubricating materials, the student will be able to lubricate meat cutting and handling equipment as prescribed in the operators' manuals.

DA g. Given finished products, the student will be able to check the accuracy of product weight to assure compliance with meat and poultry inspection regulations of the U.S.D.A.

5. Record keeping

DA a. Placed in a meat cutting department, the student will be able to take inventory of wholesale and retail meat cuts without error.

6. Marketing

DA a. Given the proper materials, the student will be able to select the correct packaging materials and wrap the product to meet store display standards.

DA b. Given prices per pound for selected cuts of meat and weight of the cut, the student will be able to accurately price each package.

DA c. When asked by a customer, the student will be able to cut special meat orders to the satisfaction of the customer.

DA d. After class instruction, discussion, and on-the-job training in consumer demands, the student will be able to organize a meat display case that will meet store display standards.

7. Human relations

DA a. Upon determining requirements and competencies needed to enter a job, the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirements needed for entry in that job.

DA b. While preparing for an occupation in agricultural products, the student will be able to conduct a self-evaluation of physical appearance, speech and conversation, and personality as it relates to relations with other persons to the satisfaction of the supervisor.

DA c. While working in agricultural products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production, initiative, and cooperation.

DA d. After receiving information about job legal requirements, the student will be able to show understanding of laws pertaining to the job by passing an examination with 90 percent accuracy.

8. Language skills

DA a. When meeting and working with employers, fellow employees or supervisors, the student will be able to communicate effectively orally or in writing with these persons to the satisfaction of the teacher and/or employer.

DA b. After receiving instructions in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

B. Dairy Processing

Dairy Sanitation Aide

1. Identification

DA a. Placed in a processing plant, the student will be able to identify commonly used cleaners and sanitizers with 100 percent accuracy.

DA b. Placed in a processing plant, the student will be able to identify milk processing and inspection equipment used in the plant without error.

2. Selection

DA a. Given commonly used cleaners and sanitizers, the student will be able to select the correct sanitizer according to plant sanitation standards.

3. Inspection

DA a. Given sampling data, the student will be able to evaluate the data according to standards listed in fluid milk and fluid milk products regulations.

DA b. Placed in a processing plant, the student will be able to inspect the plant and plant equipment to insure compliance with fluid milk and fluid milk product regulations.

4. Testing

DA a. Given a tanker filled with raw milk, the student will be able to obtain representative raw milk samples in accordance with fluid milk and fluid milk product regulations.

DA b. Given a milk sample, the student will be able to test the sample for bacteria count, coliform determination, and phosphatase in accordance with fluid milk and fluid milk product regulations.

DA c. Given the opportunity, the student will demonstrate problem solving ability by working related mathematical problems with 95 percent accuracy.

5. Manual skills and equipment and machinery operation

DA a. Placed in a processing plant, the student will be able to operate a centrifuge according to the operator's manual.

DA b. Given a sample of processed milk, the student will be able to cool the milk to prevent spoilage in accordance with fluid milk and fluid milk product regulations.

DA c. Given raw milk to be stored, the student will be able to adjust temperature of storage tanks to maintain quality in accordance with fluid milk and fluid milk product regualtions.

DA d. Using a clean-in-place system, the student will be able to clean and sanitize milk tankers in a manner agreeing with the operator's manual.

DA e. Placed in a processing plant, the student will be able to pasteurize milk so that it will pass a phosphatase test for quality at a level meeting plant standards and fluid milk and fluid milk product regulations.

6. Sanitation

DA a. Placed in a processing plant, the student will be able to clean and sanitize dairy processing equipment in a manner conforming to plant sanitation standards as well as state and federal sanitation standards.

DA b. Given commonly used cleaners and sanitizers, the student will be able to mix them for use according to directions on the container.

7. Record keeping

DA a. Placed in a processing plant, the student will be able to keep records of milk testing in a manner acceptable to the supervisor.

DA b. Placed in a processing plant, the student will be able to keep an inventory of supplies on hand in a manner conforming to plant standards.

8. Human relations

DA a. Upon determining requirements and competencies needed to enter a job, the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirements needed for entry in that job.

DA b. While preparing for an occupation in agricultural products, the student will be able to conduct a self-evaluation of physical appearance, speech and conversation, and personality as it relates to relations with other persons to the satisfaction of the instructor.

DA c. While working in agricultural products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production, initiative and cooperation.

9. Language skills

DA a. When meeting and working with employers, fellow employees, or supervisors, the student will be able to communicate effectively orally and in writing with these persons to the satisfaction of the teacher and/or employer.

DA b. After receiving instructions in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

C. Fruit and Vegetable Processing

Canning and Processing Maintenance Employee

1. Identification

DA a. Placed in a processing plant, the student will be able to identify all of the fruits and vegetables processed in the plant without error.

DA b. Placed in a processing plant, the student will be able to identify all of the finished products processed by the plant without error.

DA c. In a simulated situation, the student will be able to identify each piece of equipment found in a processing plant without error.

DA d. Placed in a processing plant, the student will be albe to identify supplies used by maintenance with 100 percent accuracy.

2. Selection

DA a. Placed in a processing plant, the student will be able to select equipment needed to perform specific maintenance jobs which will meet plant specification.

3. Inspection

DA a. Given washing, trimming, peeling, cutting, blanching, filling and closing, and cooking equipment, the maintenance employee will be able to inspect each machine for defects and make necessary repairs in a manner acceptable to the foreman.

4. Manual skills and equipment and machinery operation

DA a. Given washing, trimming, peeling, cutting, blanching, filling and closing, and cooking equipment, the student will be able to select the correct lubricating materials to lubricate each machine according to the operators' manuals.

DA b. Placed in a canning and processing plant, the student will be able to perform minor repairs and maintain electrical wiring, electrical motors, and electrical controls in a manner conforming to local codes and the National Electrical Code.

DA c. Given washing, trimming, peeling, cutting, blanching, filling and closing, and cooking equipment, the student will be able to set up a maintenance schedule for each machine which will agree with the operator's manual of each machine.

DA d. Given trimming equipment and food products to trim, the student will be able to operate the trimming equipment making necessary adjustments according to the operator's manual.

DA e. Given cutter blades, the student will be able to replace the blades in the trimming equipment according to the operator's manual.

DA f. Given peeling equipment and food products to be peeled, the student will be able to operate the peeling equipment making necessary adjustments according to the operator's manual.

DA g. Given cutting equipment and food products to be cut, the student will be able to operate the cutting equipment making necessary adjustments according to the operator's manual.

DA h. Given cutting knives, the student will be able to replace the knives in the cutting equipment according to the operator's manual.

DA i. Given blanching equipment and food products to be blanched, the student will be able to operate the blanching equipment according to plant specifications of the food involved.

DA j. Given filling equipment and food products ready for filling, the student will be able to operate the filling equipment making necessary adjustments so that the containers are filled to plant specifications.

DA k. Given closing equipment and food products in containers, the student will be able to operate the closing equipment making necessary adjustments so that the containers are sealed according to plant specifications.

DA l. Given cooking equipment and food products to be cooked, the student will be able to operate the cooking equipment making necessary adjustments according to plant specifications.

DA m. Given washing equipment and raw food products, the student will be able to operate the washing equipment making necessary adjustments according to the operator's manual.

DA n. Placed in a processing plant, the student will be able to repair and maintain the plumbing of the plant in a manner conforming to local plumbing codes.

DA o. When repairs are needed, the student will be able to repair and maintain the physical structure of the building in a manner complying with building safety codes.

DA p. Placed in a processing plant, the student will be able to follow a work order given by the foreman and complete the job in a manner acceptable to the foreman.

DA q. Given proper tools, parts, and materials, the student will be able to make minor repairs on plant washing, trimming, peeling, cutting, blanching, filling and closing, and cooking equipment according to the operators' manuals.

DA r. Placed in a processing plant, the student will be able to operate each piece of equipment in the plant in a manner prescribed in the operator's manual for each machine.

DA s. After receiving instruction in operation of cooling and humidity control equipment, the student will be able to adjust and operate the cooling and humidity control equipment at a level suitable to the supervisor.

DA t. In a simulated situation, the student will be able to explain the purpose of each step of the processing line to the satisfaction of the supervisor.

DA u. Given the opportunity, the student will be able to demonstrate problem solving ability by working related mathematical problems with 95 percent accuracy.

5. Record keeping

DA a. Placed in a processing plant, the student will be able to keep maintenance records on each machine in the plant in a manner suitable to the supervisor.

6. Human relations

DA a. After receiving information about job legal requirements, the student will be able to show understanding of laws pertaining to the job by passing an examination with 90 percent accuracy.

DA b. Upon determining requirements and competencies needed to enter a job, the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirement needed for entry in that job.

DA c. While preparing for an occupation in agricultural products, the student will be able to conduct a self-evaluation of physical appearance, speech and conversation, and personality as it relates to relations with other persons to the satisfaction of the instructor.

DA d. While working in agricultural products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production, initiative, and cooperation.

7. Language skills

DA a. When meeting and working with employers, fellow employees or supervisors, the student will be able to communicate effectively orally or in writing with these persons to the satisfaction of the teacher and/or supervisor.

DA b. After receiving instruction in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

D. Grain and Grain By-Products

Grain Grader

1. Identification

EE a. Given samples of common crop seeds, the student will be able to identify these seeds with 100 percent accuracy.

DA b. Given samples of weed seeds, the student will be able to identify these seeds with 100 percent accuracy.

DA c. Given a list containing names of weeds, the student will be able to divide the list into noxious and non-noxious weeds with 100 percent accuracy.

2. Selection

DA a. Given a sampling tube, the student will be able to use it to obtain a sample of grain from a bin, train car, or truck in a manner prescribed by the U.S.D.A.

3. Inspection

DA a. In a simulated situation, the student will be able to give the standard test weights for all grains listed in a standard text.

DA b. Given the opportunity, the student will be able to demonstrate probelm solving ability by working related mathematical problems, with 95 percent accuracy.

DA c. Given a load of grain to sample, the student will be able to evaluate the sample in a manner prescribed by the U.S.D.A.

DA d. Given a composite grain sample, the student will be able to place the sample into a sampler bag without error.

DA e. In a simulated situation, the student will be able to repeat the characteristics of each grade of market corn with 100 percent accuracy.

DA f. In a simulated situation, the student will be able to repeat the characteristics of each grade of market wheat with 100 percent accuracy.

DA g. In a simulated situation, the student will be able to repeat the characteristics of each grade of soybeans with 100 percent accuracy.

DA h. In a simulated situation, the student will be able to repeat the characteristics of other grain crops with 100 percent accuracy.

DA i. Given a seed tag, the student will be able to evaluate the contents in a manner prescribed by the U.S.D.A.

DA j. Given samples of grain, the student will be able to examine them and determine defects such as sourness, mustiness, heat damage, and cracked or broken grain with 100 percent accuracy.

DA k. Given a sample of corn, the student will be able to place it into the correct grade according to U.S.D.A. standards.

DA l. Given a sample of wheat, the student will be able to place it into the correct grade according to U.S.D.A. standards.

DA m. Given a sample of soybeans, the student will be able to place them into the correct grade according to U.S.D.A. standards.

4. Manual skills and equipment and machinery operation

DA a. Given a grain scale, the student will be able to operate the scales with 100 percent accuracy.

DA b. Given a grain sample and a Boeroner Divider, the student will be able to determine percent foreign material according to U.S.D.A. procedures.

DA c. Given a grain sample and scales, the student will be able to determine test weight of the sample in a manner prescribed by U.S.D.A. regulations.

DA d. Given a grain sample and a moisture tester, the student will be able to determine percent moisture in the sample in a manner prescribed by the operator's manual.

DA e. Given a calculator, the student will be able to operate the calculator with 100 percent accuracy.

DA f. Given a composite grain sample in a sampling bag, the student will be able to properly tag the sample with 100 percent accuracy.

DA g. Given a graded sample of grain, the student will be able to correctly record grade of sample and keep record of work performed without error.

DA h. Given a ledger book, the student will be able to record information into the ledger without error.

5. Human relations

DA a. Upon determining requirements and competencies needed to enter a job, the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirements needed for entry in that job.

DA b. While preparing for an occupation in agricultural products, the student will be able to conduct a self-evaluation of physical appearance, speech and conversation, and personality as it relates to relations with other persons to the satisfaction of the supervisor.

DA c. While working in agricultural products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production, initiative, and cooperation.

6. Language skills

DA a. When meeting and working with employers, fellow employees or supervisors, the student will be able to communicate effectively orally or in writing with these persons to the satisfaction of the teacher.

DA b. After receiving instruction in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

Oil Seed Scale Operator

1. Identification

   DA a. In a simulated situation, the student will be able to identify the equipment used in weighing grain without error.

   DA b. Given samples of common crop seeds, the student will be able to identify these seeds with 100 percent accuracy.

2. Inspection

   DA a. Given the opportunity, the student will be able to demonstrate problem solving ability to work related mathematical problems with 90 percent accuracy.

3. Manual skills and machinery and equipment operation

   DA a. Given terms of the industry such as gross weight, tare, grade yardage, net weight, the student will be able to show knowledge of these terms by applying them correctly.

   DA b. Given a scale set equipped with an automatic ticket recorder the student will be able to insert the ticket into the recorder with 100 percent accuracy.

   DA c. Given a set of scales, the student will be able to calibrate the scales, according to operating instructions.

   DA d. Given a set of scales, the student will be able to balance the scale before weighing in a manner conforming to U.S.D.A. regulations.

   DA e. Given a set of scales, the student will be able to determine gross weight with 100 percent accuracy.

   DA f. Given a gross weight and tare the student will be able to figure net weight without error.

   DA g. Given a weighing ticket and scale set the student will be able to complete without error.

DA h. Given a ledger book, the student will be able to record information into the ledger without error.

4. Human relations

DA a. Upon determining requirements and competencies needed to enter a job, the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirements needed for entry in that job.

DA b. While preparing for an occupation in agricultural products, the student will be able to conduct a self-evaluation of physical appearance, speech and conversation, and personality as it relates to relations with other persons to the satisfaction of the supervisor.

DA c. While working in agricultrual products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production, initiative, and cooperation.

DA d. After receiving information about job legal requirements, the student will be able to show understanding of laws pertaining to the job by passing an examination with 90 percent accuracy.

5. Language skills

DA a. When meeting and working with employers, fellow employees or supervisors, the student will be able to communicate effectively orally or in writing with these persons to the satisfaction of the teacher.

DA b. After receiving instruction in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

Grain Trucker

1. Identification

   DA a. When operating a truck loaded with grain, the student will be familiar with state regulations pertaining to legal load capacity of that vehicle.

   DA b. With a stalled vehicle on the highway, the student will be able to set out flags and flares according to state regulations.

2. Selection

   DA a. Given a truck and load for delivery, the student will be able to select and follow the best route and arrive at the correct destination within a time considered reasonable by the supervisor.

3. Inspection

   DA a. Given a truck, the student will be able to inspect the vehicle and prepare a report on its condition before and after each trip according to safety standards set up by the company and the Department of Transportation.

   DA b. When approaching a Department of Transportation check point, the student will be able to comply with procedures for vehicle inspection as specified by the Department of Transportation.

   DA c. Given the opportunity, the student will be able to demonstrate problem solving ability to work related mathematical problems, with 90 percent accuracy.

4. Manual skills and equipment and machinery operation

   DA a. Given a citizens band radio, the student will be able to operate it in a manner prescribed by the Federal Communications Control.

   DA b. When operating a truck, the student will be able to maintain control of the vehicle while backing up to the loading dock without damaging the vehicle, other vehicles, other equipment or other workers.

DA c. When operating a truck, the student will be able to manuever corners, turns, and narrow passageways without running over curbs, signs, or hitting other vehicles or buildings.

DA d. When operating a truck loaded with grain, the student will be able to unload the vehicle as outlined in the vehicle operator's manual and as regulated by the unloading dock.

DA e. Given a loaded truck and bill of lading, the student will be able to deliver the frieght to the desired location accounting for the load with 100 percent accuracy.

DA f. When required, the student will be able to operate conveyers and augers to load and unload the vehicle in a manner prescribed by operators' manuals.

DA g. When required, the student will be able to complete minor mechanical repairs needed to keep the vehicle in condition to pass a Department of Transportation check point.

DA h. When operating a truck, the student will be able to maintain the vehicle so that it will be able to pass a Department of Transportation check point.

DA i. Given shipping orders, the student will be able to read and interpret the orders in a manner specified by the company.

5. Record keeping

DA a. Given a log book, the student will be able to keep records concerning the vehicle and loads carried as required by the company.

DA b. Given an operator inspection report, the student will be able to complete the report without error.

6. Human relations

DA a. Upon determining requirements and competencies needed to enter a job, the student will be able to develop a personal plan which will aid in acquiring the competencies and meeting the requirements needed for entry in that job.

DA b. While preparing for an occupation in agricultural products, the student will be able to conduct a self-evaluation of physical appearance, speech and conversation, and personalty as it relates to relations with other persons to the satisfaction of the supervisor.

DA c. While working in agricultural products, the student will be able to improve relations with other personnel as evaluated by the employer utilizing criteria such as appearance, punctuality, dependability, production, initiative, and cooperation.

DA d. After receiving information about job legal requirements, the student will be able to show understanding of laws pertaining to the job by passing an examination with 90 percent accuracy.

7. Language skills

DA a. When meeting and working with employers, fellow employees or supervisors, the student will be able to communicate effectively orally or in writing with these persons to the satisfaction of the teacher and/or employer.

DA b. After receiving instructions in proper telephone usage, the student will be able to demonstrate ability to use the phone according to guidelines specified by the supervisor.

CORE COURSE OUTLINE FOR AGRICULTURAL PRODUCTS

Course Outline	Reference Code	Reference
IV. Agricultural Products		
Introduction to Agricultural Products		
1. Food products		
a. Meat, fish, poultry, eggs b. Dairy products c. Fruits and vegetables d. Cereal grains e. Oilseeds f. Other food products	TR	State of Illinois, Career Directory (1)
2. Non-food products		
a. Cotton b. Tobacco c. Wool d. Other non-food products		
3. Occupations in agricultural products		
a. Meat and meat by-products		
(1) Brand inspector (2) Butcher, all-round (3) Commission man (4) Department manager (5) Livestock buyer (6) Livestock inspector (7) Locker plant operator (8) Maintenance man	TR TR	U.S. Dept. Labor, Dictionary of Occupational Titles (2) Iowa State University, Agricultural Products Processing and Distribution (3) Ohio State University, Career Preparation in Agricultural Products (4)

KEY: TR-TEACHER REFERENCE
SR-STUDENT REFERENCE

Course Outline	Reference Code	Reference
(9) Market research analyst	SR	Stone, Careers in Agribusiness and Industry (5)
(10) Meat grader		
(11) Meat processing plant manager	TR	Hoover, Handbook of Agriculture Occupations (6)
(12) Meat inspector		
(13) Processing operation employee		
(14) Quality control officer		
(15) Scaleman		
(16) Scale operator		
(17) Smoker		
(18) Supervisor		
(19) Traffic management officer		
(20) Trucker		
(21) Warehouseman		
(22) Yard man		
b. Dairy processing		
(1) Dairy products buyer		
(2) Dairy tester		
(3) Department manager		
(4) Field contact man		
(5) Inspector		
(6) Maintenance man		
(7) Market research analyst		
(8) Milk receiver		
(9) Milk sampler		
(10) Plant manager		
(11) Processing operations employee		
(12) Product grader		
(13) Quality control officer		
(14) Salesman		
(15) Scale operator		
(16) Supervisor		

(17) Traffic management officer
(18) Trucker
(19) Warehouseman

c. Vegetable and fruit processing

(1) Department manager
(2) Inspector
(3) Maintenance man
(4) Market research analyst
(5) Plant manager
(6) Processing operations employee
(7) Produce buyer
(8) Produce grader
(9) Quality control officer
(10) Receiver
(11) Salesman
(12) Sampler
(13) Scale operator
(14) Supervisor
(15) Traffic management officer
(16) Trucker
(17) Warehouseman

d. Grain and grain by-products

(1) Commission man
(2) Fieldman
(3) Grain buyer
(4) Grain grader
(5) Grain processing
(6) Grain mixer
(7) Grain elevator employee
(8) Inspector
(9) Maintenance man
(10) Manager grain elevator
(11) Market research analyst
(12) Mill operator

(13) Quality control officer
(14) Salesman
(15) Scale operator
(16) Seed analyst
(17) Supervisor
(18) Traffic management officer
(19) Trucker
(20) Warehouseman

4. Occupational opportunities		
a. Scope and economic importance	TR	Binkley, Course of Study in Agricultural Occupations p. 1 (7)
b. Employment opportunities c. Employment requirements and conditions	TR	Hoppock, Occupational Information (8) Hopke, The Encyclopedia of Careers and Vocational Guidance (9)
d. Making plans to meet occupational requirements	SR	
5. Applying for a job in agricultural products		
a. Applying for a job	SR	V.A.S. 6001 Applying for a Job (10)
b. Taking a personal inventory c. Getting additional training	TR	Binkley, Course of Study in Agricultural Occupations p. 1 (7)
d. Finding out jobs available e. Writing a letter of application f. Interviewing with a prospective employer (teaching plan available in this guide)	TR	Ohio State University, Career Preparation in Agricultural Products p. 17 (4)
6. Using arithmetic in agricultural products		
a. Improving arithmetic skills	SR	V.A.S. 6015 Using Arithmetic in Agriculture (11)
b. Using arithmetic in calculating measures of area c. Figuring volume d. Understanding the metric system e. Figuring interest	TR	Binkley, Course of Study in Agriculture Occupations p. 49 (7)

Course Outline	Reference Code	Reference
7. Legal requirements		
a. Working papers b. Labor laws c. Federal Social Security Acts d. Workman's compensation e. Fair employment practices	SR TR	Hoover, Agricultural Business and Industry p. 91-177 (12) Binkley, Course of Study in Agricultural Occupations p. 16 (7)
8. Human relations		
a. Develop a winning personality	SR	V.A.S. 6003, Human Relations in Agricultural Business (13)
b. Getting along with fellow workers	TR	Binkley, Course of Study in Agricultural Occupations p. 65 (7)
c. Relations with superiors at all levels	SR	Hoover, Agricultural Business and Industry p. 97 (12)
d. Maintaining good relations with employees and co-workers	TR	Ohio State University, Career Preparation in Agricultural Products p. 23 (4)
9. Using language skills in agricultural products		
a. Reading and following directions	SR	V.A.S. 6003, Human Relations in Agricultural Business (13)
b. Participating in discussions	TR	Binkley, Course of Study in Agricultural Occupations p. 103 (7)
c. Using the telephone effectively		
d. Writing legibly and effectively	SR	Hoover, Agricultural Business and Industry p. 71 (12)
A. Meat and Meat By-Products		
1. Identification	SR	Hunsley, Livestock Judging and Evaluation (14)
a. Types of livestock	SR	Ensminger, Stockmans Handbook p. 307 (15)
b. Marking and identifying animals	SR	Interstate Publishing, Meat Identification Kit (16)

Course Outline	Reference Code	Reference
c. Wholesale meat cuts (teaching plan available in this guide)	TR	National Livestock and Meat Board, Meat I.D. Charts (17)
d. Internal parts (organs, muscles, bones, glands)	TR	V.A.S. 181A, I.D. of Kinds of Meat (18)
	TR	V.A.S. 183A, I.D. of Beef Cuts (19)
e. Retail meat cuts	SR	Ziegler, The Meat We Eat (20)
	SR	Interstate Publishing, Meat Identification Kit (16)
f. Meat processing equipment	TR	National Livestock and Meat Board, Meat I.D. Charts (17)
		Visit local meat processing establishments
2. Selection		
a. Livestock evaluation	SR	Hunsley, Livestock Judging and Evaluation (14)
b. Grading livestock (teaching plan available in this guide)	SR	Hunsley, Livestock Judging and Evaluation (14)
	TR	American Cyanamid, Profitable Pork Selection (21)
	SR	V.A.S. 1048, U.S.D.A. Grades of Swine (22
	TR	California State College, Beef Carcass Judging and Grading (23)
c. Carcass cutout data	TR	California State College, Beef Carcass Judging and Grading (23)
		See local community college and agricultural college personnel
d. Cleaners and sanitizers	TR	Ohio State, Career Preparation in Agricultural Products (4)
3. Inspection		
a. Anti-mortum b. Animal parts c. Stamps used d. Buildings e. Equipment	TR	U.S.D.A., Sanitation Handbook of Meat and Poultry Inspection Regulations (24) U.S.D.A., Meat and Poultry Inspection Regulations (25) U.S.D.A., Meat and Poultry Inspection Manual (26)

Course Outline	Reference Code	Reference
4. Feeding and care		
a. Feeding and care of livestock	SR	Ensminger, Stockmans Handbook (15)
b. Feed additive withdrawal periods		See Production Agriculture Core Course Outline
5. Manual skills and machinery and equipment operation		
a. Operate livestock scales		
b. Machine lubrication		
c. Meat processing equipment		See operator's manual of each machine
d. Machine adjustment		
6. Animal Health		
a. Livestock diseases	SR	Ensminger, Stockmans Handbook (15)
b. Livestock parasites		
c. Livestock nutritional deficiencies		See Production Agriculture Core Course Outline
7. Record keeping		
a. Reports		Visit local businesses and obtain samples of forms used in their business
b. Inventory		
8. Marketing		
a. Retail packaging	SR	Ziegler, The Meat We Eat (20)
b. Display cases	TR	Ohio State University, Career Preparation in Agricultural Products p. 69 (4)
B. Dairy Processing		
1. Identification		
a. Milk processing equipment		Visit milk processing plant in area

Course Outline	Reference Code	Reference
2. Selection		
a. Cleaners and sanitizers	TR	American Dairy Science Assoc., Dairy Industry Plant Training Manual (27)
	TR	Henderson, The Fluid Milk Industry pp. 144-145, 197-198 (28)
	TR	Ohio State University, Career Preparation in Agricultural Products p. 47 (4)
3. Inspection		
a. Food handling equipment	TR	American Dairy Science Assoc., Dairy Industry Plant Training Manual (27)
	TR	City of St. Louis, Fluid Milk and Fluid Milk Products (29)
4. Testing		
a. Sampling	SR	Milk Industry Foundation, Manual for Milk Plant Operators (30)
b. Bacteria count c. Coliform determination d. Phosphatase test	TR	Sommer, Market Milk and Related Products (31)
5. Manual skills and machinery and equipment operation		
a. Milk processing equipment	SR	Milk Industry Foundation, Manual for Milk Plant Operators (32)
6. Sanitation		
a. Food handling equipment (teaching plan available in this guide)	TR	Guthrie, Food Sanitation pp. 130-160 (32)
7. Record keeping	TR	Sommer, Market Milk and Related Products (31)
	67	Obtain sample forms used in area processing plants

Course Outline	Reference Code	Reference
C. Fruit and Vegetable Processing		
1. Identification		
a. Fruit and vegetables	SR	Ware and McCollum, Producing Vegetable Crops (33)
b. Fruit and vegetable processing equipment	SR	Childers, Modern Fruit Science (34) See Ornamental Horticulture Core Course Outline Visit area fruit and vegetable processors
2. Selection		
a. Fruit and vegetable processing equipment	TR	Joslyn and Heid, Food Processing Operations (35)
3. Inspection		
a. Fruit and vegetable processing equipment	TR	Joslyn and Heid, Food Processing Operations (35)
4. Manual skills and equipment and machinery operation		
a. Fruit and vegetable processing equipment operation	SR	Obtain operators' manuals for processing equipment
b. Lubrication of fruit and vegetable equipment	SR	Wisconsin Department of Public Instruction, The Canning Industry (36) Food Processing Technology Monograph, Maintenance Mechanics Apprenticeship Course Outline Notebook (37)
c. Maintenance of fruit and vegetable equipment (teaching plan available in this guide)		V.A.S. 416, Cleaning Electric Motors V.A.S. 417, Practical Maintenance of Electric Motors V.A.S. 415, Trouble Shooting Electric Motors

Course Outline	Reference Code	Reference
5. Record keeping		
a. Machine maintenance records		Obtain forms from area fruit and vegetable processing plants
D. Grain and Grain By-Products		
1. Identification		Obtain samples from local sources
a. Crop seeds	SR	Agronomy Club, Seed Identification Kit (41)
b. Weed seeds		Available from Nasco, or have students find, identify, and make seed mounts
c. State driving laws	SR	Illinois Secretary of State, Rules of the Road (42)
d. Grain handling equipment		Visit area grain dealer or processor
2. Selection		
a. Grain sampling equipment	SR	U.S.D.A., U.S. Grain Standards Act (43)
b. Route	SR	Illinois Secretary of State, Illinois Road Map (44)
3. Inspection		
a. Equipment	TR	Illinois Department of Transportation, Department of Transportation Regulations (45)
b. Grain	SR	U.S.D.A., U.S. Grain Standards Act (43)
	SR	U.S.D.A., U.S. Grain Standards Act (46)
c. Grading of grain (teaching plan available in this guide)	SR	Illinois Department of Agriculture, Illinois Seed Law and Rules and Regulations (47)
	TR	V.A.S. 734, Factors Affecting Classes and Grades of Shelled Corn

Course Outline	Reference Code	Reference
4. Manual skills and machinery and equipment operation		
a. Operate scales	SR	Obtain operator's manual
b. Operate grain handling equipment		Obtain operator's manual
c. Operate grain testing equipment		Obtain operator's manual
d. Machinery maintenance		U.S.D.A., Grain Inspectors Manual (49)
5. Record keeping		Obtain operator's manual
a. Department of Transportation	SR	Obtain form from area trucker
b. Scale book		Obtain from area grain elevator
c. Recording graded grain		U.S.D.A., Grain Inspectors Manual (49)

IV. Agricultural Products

A. Introduction to Agricultural Products

UNIT: 5. Applying for a Job in Agricultural Products

PROBLEM AREA: f. Interviewing with a Prospective Employer

TEACHING PLAN

I. INTRODUCTION: It has often been said that the first impression is a lasting impression. The personal interview is one of the most important aspects of applying for a position. A favorable interview is usually necessary if you are to get the job.

II. STUDENT PERFORMANCE OBJECTIVES:

The student will be able to:

A. Upon identifying a job in which one is interested, follow procedures necessary to become placed on the job in a manner agreeing with this plan.

B. At the completion of this unit, interview for a job in a manner agreeing with VAS 6001.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

A. Appearance
   1. Be neatly dressed--not gaudy in appearance
   2. Hair should be clean and neatly combed
   3. Stand up straight and sit alertly

B. Time of arrival
   1. Plan to arrive five to ten minutes early
   2. Announce to the receptionist that you have an appointment at (time) with (interviewer)

C. Meeting the interviewer
   1. Greet the interviewer by name
   2. Shake hands firmly
   3. Sit down only when invited to
   4. Do not chew gum or smoke during the interview; it is best to decline even if offered
   5. When sitting or standing do not slouch

D. The interview
   1. When answering questions give the interviewer only that information for which he asks
   2. Do not talk too much, but be ready to answer the facts
   3. Try not to bring up the subject of wages; let the interviewer bring it up. Refrain from naming a specific wage. A low salary can be raised with experience
   4. Be prepared to ask a few questions about the company, its policies, and the job in which you are interested
   5. Try not to appear overly anxious, yet be alert and look directly into the eyes of the employer from time to time
   6. When the interview is nearly over, leave, thanking the interviewer for his interest

E. After the interview
   1. Follow up after the interview if in a reasonable time you have not heard from the company. A letter might include an interest in their company and in the job for which you are interested

F. Questions most frequently asked during an interview
   1. What are your future vocational plans?
   2. In what school activities have you participated? Why? Which did you enjoy the most?
   3. How do you spend your spare time? What are your hobbies?
   4. In what type of position are you most interested?
   5. Why do you think you might like to work for our company?
   6. What jobs have you held? How were they obtained and why did you leave?
   7. What courses did you like best? Least? Why?
   8. Why did you choose your particular field of work?
   9. What percentage of your college expenses did you earn? How?
   10. How did you spend your vacations while in school?
   11. What do you know about our company?
   12. Do you feel that you have received a good general training?
   13. What qualifications do you have that make you feel that you will be successful in your field?
   14. What extracurricular offices have you held?
   15. What are your ideas on salary?
   16. How do you feel about your family?
   17. How interested are you in sports?
   18. If you were starting college all over again, what courses would you take?

19. Can you forget your education and start from scratch?
20. Do you prefer any specific geographic location? Why?
21. Do you have a girl? Is it serious?
22. How much money do you hope to earn at age 30? 35?
23. Why did you decide to go to this particular school?
24. How did you rank in your graduating class in high school? Where will you probably rank in college?
25. Do you think that your extracurricular activities were worth the time you devoted to them? Why?
26. What do you think determines a man's progress in a good company?
27. What personal characteristics are necessary for success in your chosen field?
28. Why do you think you would like this particular type of job?
29. What is your father's occupation?
30. Tell me about your home life during the time you were growing up.
31. Are you looking for a permanent or temporary job?
32. Do you prefer working with others or by yourself?
33. Who are your best friends?
34. What kind of boss do you prefer?
35. Are you primarily interested in making money or do you feel that service to your fellow men is a satisfactory accomplishment?
36. Can you take instructions without feeling upset?
37. Tell me a story!
38. Do you live with your parents? Which of your parents has had the most profound influence on you?
39. How did previous employers treat you?
40. What have you learned from some of the jobs you have held?
41. Can you get recommendations from previous employers?
42. What interests you about our product or service?
43. What was your record in military service?
44. Have you ever changed your major field of interest while in college? Why?
45. When did you choose your college major?
46. How do your college grades after military service compare with those previously earned?
47. Do you feel you have done the best scholastic work of which you are capable?
48. How did you happen to go to college?
49. What do you know about opportunities in the field in which you are trained?

50. How long do you expect to work?
51. Have you ever had any difficulty getting along with fellow students and faculty?
52. Which of your college years was the most difficult?
53. What is the source of your spending money?
54. Do you own any life insurance?
55. Have you saved any money?
56. Do you have any debts?
57. How old were you when you became self-supporting?
58. Do you attend church?
59. Did you enjoy your four years at this university?
60. Do you like routine work?
61. Do you like regular hours?
62. What size city do you prefer?
63. When did you first contribute to family income?
64. What is your major weakness?
65. Define cooperation!
66. Will you fight to get ahead?
67. Do you demand attention?
68. Do you have an analytical mind?
69. Are you eager to please?
70. What do you do to keep in good physical condition?
71. How do you usually spend Sunday?
72. Have you had any serious illness or injury?
73. Are you willing to go where the company sends you?
74. What job in our company would you choose if you were entirely free to do so?
75. Is it an effort for you to be tolerant of persons with a background and interests different from your own?
76. What types of books have you read?
77. Have you plans for graduate work?
78. What types of people seem to "rub you the wrong way?"
79. Do you enjoy sports as a participant? As an observer?
80. Have you ever tutored an underclassman?
81. What jobs have you enjoyed the most? The least? Why?
82. What are your own special abilities?
83. What job in our company do you want to work toward?
84. Would you prefer a large or a small company? Why?
85. What is your idea of how industry operates today?
86. Do you like to travel?
87. How about overtime work?
88. What kind of work interests you?
89. What are the disadvantages of your chosen field?
90. Do you think that grades should be considered by employers? Why or why not?
91. Are you interested in research?

92. If married, how often do you entertain at home?
93. To what extent do you use liquor?
94. What have you done which shows initiative and willingness to work?

G. Factors which may lead to rejection of applicant
1. Poor personal appearance
2. Overbearing - overaggressive - conceited "superiority complex" - "know-it-all"
3. Inability to express himself clearly--poor voice, diction, grammar
4. Lack of planning for career--no purpose and goals
5. Lack of interest and enthusiasm--passive, indifferent
6. Lack of confidence and poise - nervousness - ill-at-ease
7. Failure to participate in activities
8. Overemphasis on money--interest only in best dollar offer
9. Poor scholastic record--just got by
10. Unwilling to start at the bottom--expects too much too soon
11. Makes excuses - evasiveness - hedges on unfavorable factors in record
12. Lack of tact
13. Lack of maturity
14. Lack of courtesy - ill mannered
15. Condemnation of past employers
16. Lack of social understanding
17. Marked dislike for school work
18. Lack of vitality
19. Fails to look interviewer in the eye
20. Limp, fishy hand-shake
21. Indecision
22. Loafs during vacations
23. Unhappy married life
24. Friction with parents
25. Sloppy application blank
26. Merely shopping around
27. Wants job only for short time
28. Little sense of humor
29. Lack of knowledge of field of specialization
30. Parents make decisions for him
31. No interest in company or in industry
32. Emphasis on whom he knows
33. Unwillingness to go where we send him
34. Cynical
35. Low moral standards
36. Lazy
37. Intolerant - strong prejudices
38. Narrow interests

39. Spends much time in movies
40. Poor handling of personal finances
41. No interest in community activities
42. Inability to take criticism
43. Lack of appreciation of the value of experience
44. Radical ideas
45. Late to interview without good reason
46. Never heard of company
47. Failure to express appreciation for interviewer's time
48. Asks no questions about the job
49. High pressure type
50. Indefinite response to questions

The lists of questions asked and negative factors evaluated were taken from the pamphlet, Making the Most of Your Job Interview, published by the New York Life Insurance Company. We hereby acknowledge the securing of the lists from that source.

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Discuss with class the above outline.

B. Use role playing technique and have students act out interviews. Have students critique each interview.

C. Arrange for a personnel manager of a local company to discuss with the class what his company looks for in selecting an employee.

D. Have the personnel manager interview several students and then select one of the students he interviewed and tell why he would choose that individual.

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Small table or desk

B. Two chairs

C. A tape recorder to play parts of interviews

VI. STUDENT REFERENCES:

A. Reference 10, Applying for a Job, VAS 6001.

IV. Agricultural Products

A. Meat and Meat By-Products

UNIT: 1. Identification

PROBLEM AREA: c. Wholesale Meat Cuts (Beef)

TEACHING PLAN

I. INTRODUCTION: Knowledge of the wholesale meat cuts assist the butcher in determining meat prices and maximize product use. The meat inspector as well would find it difficult to accurately inspect meat unless he knew what part of the animal he was observing.

II. STUDENT PERFORMANCE OBJECTIVES:

The student will be able to:

A. After receiving classroom instruction, identify the wholesale beef cuts with 100% accuracy.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

A. Difference between beef, pork, veal, and lamb cuts
   1. Color of lean
      a. Beef varies from bright to dark red
      b. Lamb is light pink, mutton is brick red
      c. Pork is gray pink to gray red
      d. Veal is pink brown
   2. Size of cuts
      a. Beef cuts are large
      b. Lamb cuts are small
      c. Pork and veal cuts are similar in size
   3. Type of fat
      a. Beef is white or cream white, firm, and dry looking
      b. Lamb is chalk white, brittle, rather dense
      c. Pork is white and greasy
      d. Veal has no fat

B. Wholesale cuts
   1. Round
   2. Rump
   3. Sirloin

4. Short loin
5. Flank
6. Rib
7. Chuck
8. Short plate
9. Brisket
10. Fore shank

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Visit a processing plant

B. Arrange for students to work with retail meat cutter

C. Use filmstrips from Vocational Agriculture Service as listed below

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Charts from National Livestock and Meat Board

B. Meat Identification Kit

VI. STUDENT REFERENCES:

A. Reference 17, Meat Identification Charts

B. Reference 16, Meat Identification Kit

C. Reference 18, Identification of Kinds of Meat, VAS 181A

D. Reference 19, Identification of Beef Cuts, VAS 183A

E. Reference 20, The Meat We Eat

IV. Agricultural Products

A. Meat and Meat By-Products

UNIT: 2. Selection

PROBLEM AREA: b. Grading Livestock (Market Hogs)

TEACHING PLAN

I. INTRODUCTION: One of the most important factors in determining the profit of meat processing plants is the success with which the livestock buyer purchases hogs that both grade and yield a high percentage of primal cuts. The success with which the buyer purchases these type of animals results in the consumer being satisfied with the meat cuts purchased across the counter.

II. STUDENT PERFORMANCE OBJECTIVES:

The student will be able to:

A. After class study and discussion, list the five U.S.D.A. hog carcass grades without error.

B. After class study and discussion, give characteristics of and recognize each grade of hogs in accordance with a standard livestock judging and evaluation.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

A. The five U.S.D.A. swine carcass grades are:
1. U.S. #1
2. U.S. #2
3. U.S. #3
4. U.S. #4
5. U.S. Utility

B. The characteristics of each carcass grade are:
1. U.S. #1 - Grading 53 per cent and over
a. Acceptable quality lean
b. High yield of lean cuts
c. Low yield of fat cuts
d. Belly at least slightly thick
e. Slightly firm lean
f. Slightly firm fat
g. Slight amount of marbling

h. Slight amount of feathering
i. Grayish pink to moderately dark red color
j. Thickly muscled ham, loin and shoulder
k. Lower portion of ham toward the hock is covered with a thin layer of fat
l. Back is well-rounded
m. Area at the junction of the lower part of the shoulder and the belly is depressed in relation to the shoulder and the belly
n. Area directly anterior to the hip bone is depressed in relation to the loin and ham

2. U.S. #2 - Grading 50 to 52.9 per cent
a. Acceptable quality lean
b. Slightly high yield of lean cuts
c. Slightly low yield of fat cuts
d. Belly at least slightly thick
e. Slightly firm lean
f. Slightly firm fat
g. Slight amount of marbling
h. Slight amount of feathering
i. Grayish pink to moderately dark red color
j. Moderately thickly muscled in the ham, loin and shoulder
k. The lower portion of the ham toward the hock is covered with a slightly thin layer of fat
l. Back is slightly well-rounded
m. The area at the junction of the lower part of the shoulder and belly is slightly depressed in relation to the shoulder and belly area
n. The area directly anterior to the hip bone is slightly depressed in relation to the ham and loin

3. U.S. #3 - Grading 47 to 49.9 per cent
a. Acceptable quality lean
b. Slightly low yield of lean cuts
c. Slightly high yield of fat cuts
d. Belly at least slightly thick
e. Lean is at least slightly firm
f. Slightly firm fat
g. Slight amount of marbling
h. Slight amount of feathering
i. Grayish pink to moderately dark red in color
j. Slightly thinly muscled in the ham, loin and shoulder
k. The lower portion of the ham toward the hock is covered with a slightly thick layer of fat
l. Back is slightly flat and the edge of the loin is slightly full resulting in a slight break from the back to the side
m. The area at the junction of the lower part of the shoulder and the belly has only a slight depression in relation to the shoulder and belly
n. The area directly anterior to the hip bone has only a very slight depression in relation to the loin and the ham

4. U.S. #4 - Grading less than 47 per cent
   a. Acceptable quality lean
   b. Low yield of lean cuts
   c. High yield of fat cuts
   d. Belly at least slightly thick
   e. Lean is at least slightly firm
   f. Slightly firm fat
   g. Slight amount of marbling
   h. Slight amount of feathering
   i. Grayish pink to moderately dark red in color
   j. Thinly muscled in the ham, loin and shoulder
   k. The lower portion of the ham toward the hock is covered with a thick layer of fat
   l. Back is flat and the edge of the loin is full resulting in a definite break from the back to the side
   m. The area at the junction of the lower part of the shoulder and the belly is full and smooth in relation to the shoulder and belly
   n. The area directly anterior to the hip bone is full and smooth in relation to the loin and the ham
5. U.S. Utility
   a. Carcasses that have characteristics that indicate that they will have a lesser development of lean quality than described as minimum for other four grades
   b. Carcasses that do not have acceptable belly thickness
   c. Carcasses that are soft and oily

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Have students view VAS filmstrip U.S.D.A. Swine and Pork Carcass Grades.

B. Show movie from Modern Talking Picture, "Profitable Pork Selection."

C. Take a field trip to a packing house for students to practice grading hogs. It would then be best to arrange a return trip to see the hogs hanging or obtain the carcass cutout data so that students can compare live animal placings and carcass data.

V. SPECIAL MATERIALS AND EQUIPMENT:

Nothing additional

VI. STUDENT REFERENCES:

A. Reference 4av, U.S.D.A. Swine and Pork Carcass Grades

B. Reference 14, Livestock Judging and Evaluation

C. Reference 3av, Profitable Pork Selection

IV. Agricultural Products

B. Dairy Processing

UNIT: 6. Sanitation

PROBLEM AREA: a. Food Handling Equipment

TEACHING PLAN

I. INTRODUCTION: Dairy processing equipment must be properly pre-rinsed, cleaned, post-rinsed, and sanitized so that when milk comes into contact with the surfaces it is not contaminated.

II. STUDENT PERFORMANCE OBJECTIVES:

The student should be able to:

A. Using facilities in the school laboratory and/or dairy processing plant, manually clean and sanitize dairy parts (fittings, valves, etc.) so that the cleaning and sanitizing of parts meet the plant sanitation standards as well as local, state, and federal dairy plant sanitation standards.

B. Using facilities in the school laboratory and/or dairy processing plant, mechanically clean and sanitize the following types of dairy equipment so that plant sanitation standards are maintained:
1. Raw milk storage tanks
2. Clarifier
3. Pasteurizer
4. Homogenizer
5. Cooler
6. Filler

C. Disassemble and assemble the following dairy equipment so that the equipment can be manually cleaned and sanitized to meet plant, local, state, and federal standards:
1. Clarifier
2. Pasteurizer
3. Homogenizer
4. Cooler
5. Filler

III. OUTLINE OF INSTRUCTIONAL CONTENT:

A. Using sanitation procedures in manually cleaning and sanitizing dairy equipment parts
   1. Selecting, measuring and mixing cleansers according to manufacturer's directions
      a. Using appropriate containers
      b. Using desired water temperature
   2. Selecting, measuring and mixing sanitizers according to manufacturer's directions
      a. Using appropriate containers
      b. Using desired water temperature
   3. Collecting and pre-rinsing dairy equipment parts
      a. Valves
      b. Fittings
   4. Cleaning dairy equipment with the use of recommended brushes
   5. Post-rinsing dairy equipment parts with desired water tempreature
   6. Sanitizing dairy equipment parts with the use of desired brushes

B. Using sanitation procedures in mechanically cleaning and sanitizing dairy equipment
   1. Preparing cleansers and sanitizers
      a. Selecting, measuring and mixing cleansers according to manufacturer's directions with desired water temperatures
      b. Selecting, measuring and mixing sanitizers according to manufacturer's directions with desired water temperatures
   2. Setting up the clean-in-place system in the plant so that dairy processing equipment can be cleaned and sanitized
      a. Making proper connections for setting up the clean-in-place system
      b. Checking levels of water solutions and temperatures for pre-rinsing, cleaning, post-rinsing and sanitizing
   3. Operating the clean-in-place system
      a. Pre-rinsing dairy equipment
      b. Cleaning dairy equipment
      c. Post-rinsing dairy equipment
      d. Sanitizing dairy equipment

C. Disassembling and assembling dairy processing equipment for cleaning and sanitizing
   1. The clarifier
      a. Identifying parts which are to be disassembled for cleaning
      b. Disassembling parts with desired tools
         (1) Preventing damage to parts
         (2) Placing parts in desired area on metal tables

c. Pre-rinsing parts with desired water temperatures
d. Cleaning parts with desired cleansers
e. Post-rinsing parts
f. Sanitizing parts with desired sanitizers

2. The pasteurizer
   a. Identifying parts which are to be disassembled for cleaning
   b. Disassembling parts with desired tools
      (1) Preventing damage to parts
      (2) Placing parts in desired area on metal tables
   c. Pre-rinsing parts with desired water temperatures
   d. Cleaning parts with desired cleansers
   e. Post-rinsing parts
   f. Sanitizing parts with desired sanitizers
3. The homogenizer
   a. Identifying parts which are to be disassembled for cleaning
   b. Disassembling parts with desired tools
      (1) Preventing damage to parts
      (2) Placing parts in desired area on metal tables
   c. Pre-rinsing parts with desired water temperatures
   d. Cleaning parts with cleansers
   e. Post-rinsing parts
   f. Sanitizing parts with sanitizers
4. The cooler
   a. Identifying parts which are to be disassembled for cleaning
   b. Disassembling parts with desired tools
      (1) Preventing damage to parts
      (2) Placing parts in desired area on metal tables
   c. Pre-rinsing parts with desired water temperatures
   d. Cleaning parts with cleansers
   e. Post-rinsing parts
   f. Sanitizing parts with sanitizers
5. The filler
   a. Identifying parts which are to be disassembled for cleaning
   b. Disassembling parts with desired tools
      (1) Preventing damage to parts
      (2) Placing parts in desired area on metal tables
   c. Pre-rinsing parts with desired water temperatures
   d. Cleaning parts with cleansers
   e. Post-rinsing parts
   f. Sanitizing parts with sanitizers

D. Using sanitation procedures for cleaning areas where milk products are processed
   1. Preparing work areas for washing down
      a. Arranging equipment and removing obstacles
      b. Checking areas for proper drainage
   2. Washing down work areas
      a. Using water hoses for rinsing and washing
      b. Using brooms for scrubbing
   3. Storing equipment used for cleaning work areas
      a. Placing water hoses in desired area
      b. Storing brooms and pails

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Obtain dairy processing equipment cleansers and have students measure and mix cleansers according to manufacturer's directions.

B. Have students practice connecting the clean-in-place system to the following dairy processing equipment:
   1. Pipe line systems
   2. Vats
   3. Homogenizers

C. Divide the class into groups of three and have them disassemble and assemble specified parts to milk homogenizers.

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Dairy processing facilities in the school laboratory and/or commercial dairy processing plant

B. Cleansers and sanitizers, brooms, brushes, pails

C. Dairy processing equipment: clarifier; pasteurizer; homogenizer; cooler; filler

D. Clean-in-place system

E. Parts to dairy processing equipment: fittings, valves, etc.

F. Hard hats, rubber boots

VI. STUDENT REFERENCES:

A. Reference 31, Market Milk and Related Products

B. Reference 32, Food Sanitation

IV. Agricultural Products

C. Fruit and Vegetable Processing

UNIT: 4. Manual Skills and Equipment and Machinery Operation

PROBLEM AREA: c. Maintenance of Fruit and Vegetable Processing Equipment

TEACHING PLAN

I. INTRODUCTION: An electric motor, properly installed, requires less maintenance than many other types of equipment. However, for the best and most economical performance, a motor should be serviced periodically. This is necessary because motors frequently operate under adverse conditions in an environment of excessive dust, dirt, and moisture.

II. STUDENT PERFORMANCE OBJECTIVES:

The student will be able to:

A. At the completion of this unit, properly service an electric motor, checking all of the following points.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

A. Frequency of service
   1. Motor should be serviced once per year.
   2. If motor operates under severe heat, cold, or dusty conditions it should be checked two or three times per year.

B. Check list of service needed -- CAUTION -- Do not attempt to make changes or repairs on electric motors until they have been disconnected from the power source
   1. Air passages--dust and dirt should be removed from air passages to insure proper cooling. Dust should be removed with a vacuum-type cleaner.
   2. Bearings--bearings should be checked for wear. Excessive side play or end play may cause the motor to draw higher starting current and develop less starting torque.
   3. Lubrication--lubricate the motor with the type and amount of lubricant specified by the manufacturer. Do not over-lubricate. Wipe excess oil or spilled oil off motor. Oil draws dust

and together they form gum that deteriorates motor parts.

4. Wiring--check wiring for frayed or bare spots and repair or replace as needed.
5. Alignment--misalignment between the motor and driven device can cause damage such as burned out bearings, overload failure.
6. Vibration--motor vibration can loosen mounting and assembly bolts and shake electrical connections loose. As vibration increases, wear is caused and the more wear the more vibration.
7. Overload--overloading an electric motor will cause it to heat up. Increased temperatures can damage insulation, melt soldered connections, and damage bearings.
8. Contacts and brushes--clean starting switch contacts of split phase and capacitor motors and commutator and brushes of repulsion motors. Use very fine sandpaper, not emery cloth. Replace worn brushes. Be sure that the brush lifting and shorting ring action works smoothly.

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Demonstrate the proper cleaning and servicing of split phase, capacitor, and repulsion motors.

B. Show filmstrips (see reference list at end of unit).

C. Have students bring electric motors from home to school shop for servicing.

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Various types of electric motors

B. Service tools needed for electric motors

VI. STUDENT REFERENCES:

A. Reference 11av, Cleaning Electric Motors

B. Reference 12av, Practical Maintenance of Electric Motors

C. Reference 13av, Trouble Shooting Electric Motors

IV. Agricultural Products

D. Grain and Grain By-Products

UNIT: 3. Inspection

PROBLEM AREA: c. Grain Grading (Corn)

TEACHING PLAN

I. INTRODUCTION: In order to buy and sell a grain commodity by telephone, both parties involved in the transaction must know exactly what commodity is involved and the quality of that commodity. This need is filled by grain inspectors of the U.S.D.A. After the inspector grades a sample, the buyer and seller can rely on the grain being of a quality known by both.

II. STUDENT PERFORMANCE OBJECTIVES:

The student will be able to:

A. After receiving instruction, give the characteristics of each grade of market corn with 100% accuracy.

B. Given a sample of corn, place it into the correct U.S.D.A. grade without error.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

A. Corn--corn shall be any grain which consists of 50 per cent or more of whole kernels of shelled dent corn and/or shelled flint corn and may contain not more than 10 per cent of any other grains for which standards have been established under the United States Grain Standards Act.

B. Classes of corn
   1. Yellow Corn--the class yellow corn shall be yellow kerneled corn and may contain not more than 5.0 per cent of corn of other colors. Yellow kernels of corn with a slight tinge of red shall be considered as yellow corn.
   2. White Corn--the class white corn shall be white kerneled corn and may contain not more than 2.0 per cent of corn of other colors. White kernels of corn with a slight tinge of light straw or pink color shall be considered as white corn.

3. Mixed Corn--the class mixed corn shall be corn which does not meet the color requirements for either of the classes yellow corn or white corn and shall include white-capped yellow corn.

C. Other grading considerations
1. Broken corn and foreign material--broken corn and foreign material shall be kernels and pieces of kernels of corn and all matter other than corn which will pass readily through a 12/64 sieve, and all matter other than corn which remains in the sieved sample.
2. Damaged kernels--damaged kernels shall be kernels and pieces of kernels of corn which are heat damaged, sprouted, frosted, badly ground damaged, badly weather damaged, moldy, diseased, or otherwise materially damaged.
3. Heat damaged kernels--heat damaged kernels shall be kernels and pieces of kernels of corn which have been materially discolored and damaged by heat.
4. 12/64 Sieve--a 12/64 sieve shall be an aluminum sieve 0.0319 inch thick perforated with round holes 0.1875 (12/64) inch in diameter which are 1/4 inch from center to center. The perforations of each row shall be staggered in relation to the adjacent row.
5. Stones--stones shall be concreted earthy or mineral matter and other substances of similar hardness that do not disintegrate readily in water.

D. Principles governing application of grain standards
The following principles shall apply in the determination of the classes and grades of corn:
1. Basis of determination--each determination of class, damaged kernels, heat-damaged kernels, flint corn, and flint and dent corn shall be upon the basis of the grain after the removal of the broken corn and foreign material. All other determinations shall be upon the basis of the grain as a whole.
2. Percentages--all percentages shall be determined upon the basis of weight.
3. Moisture--moisture shall be ascertained by the air oven method for corn prescribed by the United States Department of Agriculture as described in Service and Regulatory Announcements No. 147 (1959 Revision) of the Agricultural Marketing Service, or ascertained by any method which gives equivalent results.
4. Test weight per bushel--test weight per bushel shall be the weight per Winchester bushel as determined by the method prescribed by the United

States Department of Agriculture as described in Circular No. 921, issued June 1953, or as determined by any method which gives equivalent results.

E. Grades and Grade Requirements

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Have students bring in samples of corn to practice grading.

B. Arrange for a grain inspector to visit class and demonstrate his work.

C. Visit a grain inspector on the job.

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Grain samples

B. Moisture tester

C. Grain divider

D. Grain sieves

E. Grain scale

F. Grain grading charts

VI. STUDENT REFERENCES:

A. Reference 8av, Factors Affecting Classes and Grades of Shelled Corn.

B. Reference 46, Official Grain Standards of the United States.

REFERENCES

Specific References

IV. Agricultural Products

Introduction to Agricultural Products

1. State of Illinois Board of Vocational Education. Applied Biological and Agricultural Occupations Career Directory, Springfield, Illinois.

2. U.S. Department of Labor. Dictionary of Occupational Titles, Washington D.C., U.S. Printing Office, 1965.

3. Iowa State University. Agricultural Products Processing and Distribution, Ames, Iowa, 1974.

4. Ohio Career Education and Curriculum Management Laboratory. Career Preparation in Agricultural Products, The Ohio State University, Columbus, Ohio, 1974.

5. Stone, Archie A. Careers in Agribusiness and Industry, The Interstate Printers and Publishers, Danville, Illinois, 1965.

6. Hoover, Norman K. Handbook of Agricultural Occupations, The Interstate Printers and Publishers, Danville, Illinois, 1963.

7. Binkley, Harold. Course of Study in Agricultural Occupations, University of Kentucky, Lexington, Kentucky, 1968.

8. Hoppock, Robert. Occupational Information, McGraw Hill Publishers, New York, 1967.

9. Hopke, William E. The Encyclopedia of Careers and Vocational Guidance, Doubleday and Company Inc., Chicago, 1972.

10. Applying for a Job, V.A.S. 6001, University of Illinois, Urbana, Illinois.

11. Using Arithmetic in Agriculture, V.A.S. 6015, University of Illinois, Urbana, Illinois.

12. Hoover, Norman K., Weyant, Thomas J., and McClay, David R. Agricultural Business and Industry, The Interstate Printers and Publishers, Danville, Illinois, 1966.

13. Human Relations in Agricultural Business, V.A.S. 6003, University of Illinois, Urbana, Illinois.

A. Meat and Meat By-Products

14. Hunsley, Roger E. Livestock Judging and Evaluation, Purdue University, Lafayette, Indiana.

15. Ensminger, M. E. Stockmans Handbook, The Interstate Printers and Publishers, Danville, Illinois.

16. Meat Identification Kit, The Interstate Printers and Publishers, Danville, Illinois.

17. Meat Identification Charts, National Livestock and Meat Board, Chicago, Illinois.

18. Identification of Kinds of Meat, V.A.S. 181A, University of Illinois, Urbana, Illinois.

19. I.D. of Beef Cuts, V.A.S. 183A, University of Illinois, Urbana, Illinois.

20. Ziegler, Thomas P. The Meat We Eat, The Interstate Printers and Publishers, 1967.

21. Profitable Pork Selection, American Cyanamid, Venard Films, Peoria, Illinois.

22. U.S.D.A. Grades of Swine, V.A.S. 1048, University of Illinois, Urbana, Illinois.

23. California State Polytechnic College. Beef Carcass Judging and Grading, San Luis Obispo, California.

24. Sanitation Handbook of Meat and Poultry Inspection Programs, Animal and Plant Health Inspection Services, U.S.D.A., Washington, D.C.

25. Meat and Poultry Inspection Regulations, Animal and Plant Health Inspection Service, U.S.D.A., Washington, D.C.

26. Meat and Poultry Inspection Manual, Animal and Plant Health Inspection Service, U.S.D.A., Washington, D.C.

B. Dairy Processing

27. Dairy Industry Plant Training Manual, The Personnel Training Manual Preparation Committee, American Dairy Science Association, White Plains, New York, 1959.

28. Henderson, James Lloyd. The Fluid Milk Industry, The A.V.I. Publishing Company Inc., Westport, Connecticut, 1971.

29. Health Commissioner, City of St. Louis. Ordinance and Regulations Governing the Production, Handling, and Sale of Fluid Milk and Fluid Milk Products, St. Louis, Missouri, 1971.

30. Manual for Milk Plant Operators, Milk Industry Foundation, Washington, D.C., 1967.

31. Sommer, Hugo H. Market Milk and Related Products, Olsen Publishing Company, Milwaukee, Wisconsin, 1952.

32. Guthrie, Rufus F. Food Sanitation, The A.V.I. Publishing Company, Inc., Westport, Connecticut, 1972.

C. Fruit and Vegetable Processing

33. Ware, G. W., and McCollum, J. P. Producing Vegetable Crops, The Interstate Printers and Publishers, Danville, Illinois.

34. Childers, Norman F. Modern Fruit Science, The Interstate Printers and Publishers, Danville, Illinois.

35. Joslyn, Maynard A. and Heid, J. L. Food Processing Operations--Their Management, Machines, Materials, and Methods, The A.V.I. Publishing Company, Inc., Westport, Connecticut, 1963.

36. The Canning Industry, Communications Services, National Canners Association, Washington, D.C., 1971.

37. Maintenance Mechanics Apprenticeship Course Outline Notebook, Moraine Park Technical Institute, Bever Dam, Wisconsin.

D. Grain and Grain By-Products

38. Cleaning Electric Motors, V.A.S. 416, University of Illinois, Urbana, Illinois.

39. Practical Maintenance of Electric Motors, V.A.S. 417, University of Illinois, Urbana, Illinois.

40. Trouble Shooting Electric Motors, V.A.S. 415, University of Illinois, Urbana, Illinois.

41. Crop Seed I.D. Samples, Agronomy Club, Turner Hall, University of Illinois, Urbana, Illinois.

42. Rules of the Road, Secretary of State, State of Illinois, Springfield, Illinois.

43. U.S. Department of Agriculture. U.S. Grain Standards Act, U.S. Printing Office, Washington, D.C., 1970.

44. Illinois Road Map, Secretary of State, State of Illinois, Springfield, Illinois.

45. Department of Transportation Regulations, Illinois Department of Transportation, Springfield, Illinois.

46. U.S. Department of Agriculture. Official Grain Standards of the United States, U.S. Printing Office, Washington, D.C., 1970.

47. Illinois Department of Agriculture. Illinois Seed Law Rules and Regulations, Springfield, Illinois, 1973.

48. Factors Affecting Classes and Grades of Shelled Corn, V.A.S. 734, University of Illinois, Urbana, Illinois.

49. U.S. Department of Agriculture. Grain Inspectors Manual, U.S. Printing Office, Washington, D.C.

Selected References for More Information

A. Judkins and Kerner. Milk Production and Processing, John Wiley and Sons, New York, New York.

B. Milk Pasteurization, A.V.I. Publishing Company, Westport, Connecticut.

C. Trout, G. M. Homogenized Milk - A Review and Guide, Michigan State College Press, East Lansing, Michigan, 1950.

D. HTST Pasteurizer Operation Manual. Education and Training Committee, Oregon Association of Milk, Food and Environmental Sanitarians, Inc., O.S.U. Book Stores, Inc., Corvallis, Oregon, 1968.

E. Meat for the Table, McGraw-Hill Book Company, New York, New York.

F. Self-Service Meats, National Association of Retail Grocers, Chicago, Illinois.

G. Retail Meats--Storage, Handling, Sanitation, Circular 583, University of Wisconsin Extension Service, College of Agriculture, Madison, Wisconsin.

H. Mortenson. Modern Marketing of Farm Products, The Interstate Printers and Publishers, Danville, Illinois.

I. Fowler. The Marketing of Livestock and Meat, The Interstate Printers and Publishers, Danville, Illinois, 1961.

J. Uniform Retail Meat Identity Standards, Industrywide Cooperative Meat Identification Standards Committee, National Livestock and Meat Board, Chicago, Illinois, 1973.

K. Bisarek, Kenneth and Moffett, Luther. Butcher, Southwest Wisconsin Vocational-Technical School, Fennimore, Wisconsin.

L. Breidenstein, Burdette C. Beef Operations in the Meat Industry, Edwards Brothers, Inc., Ann Arbor, Michigan, 1966.

M. Levie, Albert. The Meat Handbook, The A.V.I. Publishing Company, Inc., Westport, Connecticut, 1970.

N. Meat Evaluation Handbook, National Livestock and Meat Board, Chicago, Illinois.

O. Meat Processing Plant Employee, Vocational Instructional Services, Texas A. & M. University, College Station, Texas.

P. Resource Unit on Human Relations, Department of Agricultural Education, The University of Arizona, Tucson, Arizona, 1971.

Q. The Sales Promotion Handbook, Dartnell Corporation, Chicago, Illinois, 1955.

R. Shannon, Theodore. Taking Care of Yourself, Ohio Agricultural Education Curriculum Materials Service, Ohio State University, Columbus, Ohio, 1973.

S. So You Work in a Food Plant, FDA 72-2032, Public Health Service, Food and Drug Administration, U.S. Department of Health, Education, and Welfare, U.S. Government Printing Office, Washington, D.C.

T. Fridline, Clarence R. Insecticides--Kinds, Formulations, Mixing, and Applying, Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, Columbus, Ohio, 1973.

U. Briggs, Andrew J. Warehouse Operations Planning and Management, John Wiley and Sons, New York, New York, 1960.

V. Agricultural Products: Student Study Guide and Answer Book, Agricultural Education Service, State Department of Education, Montgomery, Alabama.

W. Human Relations in Business, Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, Columbus, Ohio, 1971.

X. Course of Study in Agricultural Occupations, Department of Agricultural Education, University of Kentucky, Lexington, Kentucky, 1967.

SCHOOL FACILITIES, EQUIPMENT, AND SUPPLIES

A prerequisite to a successful agricultural occupations program is a comfortable, clean, well-lighted, heated, and ventilated classroom.

The following lists were developed by The Ohio State University and are recommended for those schools wishing to develop an agricultural products processing program around one or more of these areas.

General Agricultural Products (Food Processing) Equipment

Hard hats
Rubber boots
Food processing equipment cleansers
Food processing equipment sanitizers
Hand brushes
Floor brooms
Sanitizing equipment
Water hoses
Pails
Aprons
Work uniforms
First aid kits
Manual chemical applicator

Livestock Meat Processing Equipment

Bleeding knives
Hot water thermometer
Electrical grinder
Knife rocks and pouches
Electrical prod
Butcher knives
Block brushes
Meat block
Electric meat cutting hand saw
Metal cutting tables
Tying machine

Livestock Meat Processing Equipment (Continued)

Wrapping materials:
  Wrapping wax
  Butcher wrap
  Freezer wrap
  Patty paper
  Twine
  Gummed tape
Shrouding cloth
Knocking pen
Hoist system
Hog scalding tub
Dehairer
Rail dropper
Elevating platform
Electric stunner, complete
Humane stunning pistol, complete
Head flushing cabinet
Head work-up table
Pluck trimming table
Hock cutter sterilizer
Paunch truck
Sticker platform
Sterilizing lavatory
Tracking system and switches
Brake rail
Landing table
Beef shackle system
Hog shackle system
Beef roller system
Hog gamble system
Roller poles and thermometer
Knives system
Knife steel and pouch system
Hi-lo platform system
Leg cut-off and breast saw, tail puller system
Inspector steps and beef scribe saw system
Patty machine
Grinder - mixer
Meat case complete
Cash and wrap counter
Meat slicer
Scales
Tenderizer
Portion scale
High pressure washer, complete
Beef splitting saw
Viscera inspection table
Cutting-boning table
Trimming table

Livestock Meat Processing Equipment (Continued)

Hog scald
System meat trees
Carcass drop
Meat trucks
Pickling tank
Tote box system
Elastic net and S/S meat insort, complete
Track scales
Brine and pickling pump
Smokehouse
Electric skinning knife
Hog singer
Inspection stamp

Poultry Processing Equipment

Shackling equipment
Electric shocker
Bleeding knives
Scalding equipment
Rubber fingered pickers
Singeing equipment
Chillers

Fish Processing Equipment

Washing equipment
Mechanical scaling equipment
Mechanical gutting equipment
Mechanical heading equipment
Mechanical skinning equipment
Mechanical filleting equipment

Dairy Processing Equipment

Milk tanker
Milk storage tanks
Clarifier
Pasteurizer
Homogenizer
Cooler
Filler
Packaging equipment
Long handled dipper

Dairy Processing Equipment (Continued)

Casers
Stackers
Milk cases
Raw milk pump
Recorders
Thermometers
Timing pump
Balance tank
Holding tube
Flow diversion valve
Pasteurized milk storage tank
Refrigeration system
Cold storage area
Dolleys
Parts washer
Water heating system

Fruit and Vegetable Canning Equipment

Conveyors
Washing machine
Trimming machine
Peeler
Cutting machine
Blancher
Cooker
Filling equipment
Closing equipment
Inspection table
Preparation tables
Exhaust box
Filler (semi-automatic)
Retorts
Retort instruments
Retort crates
Plate heat exchanger (high temperature-short time)
1/2-ton hoist and monorail
Filter pump
50 h.p. oil burning boiler
Air compressor
Refrigeration compressor

Grain and Grain By-Products

Grain drier
Sampling bags
Grain scales

Grain and Grain By-Products (Continued)

Moisture tester
Grain sieves
Grain dividers
Scale book

AUDIO VISUAL SOURCES AND MATERIALS

IV. Agricultural Products

1 av. Dynamic Careers Through Agriculture, The Farm Film Foundation, 1425 H. St. N.W., Washington, D.C. 20005.

2 av. Beef Carcass Judging and Grading, California State College, San Luis Obispo, California.

3 av. Profitable Pork Selection, Modern Talking Picture Service, 2323 New Hyde Park Road, New Hyde Park, New York 11040.

4 av. U.S.D.A. Swine and Pork Carcass Grades, Vocational Agriculture Service, University of Illinois, Urbana, Illinois.

5 av. Identification of Kinds of Meat, Vocational Agriculture Service, University of Illinois, Urbana, Illinois.

6 av. Identification of Pork, Beef, and Lamb Cuts, Vocational Agriculture Service, University of Illinois, Urbana, Illinois.

7 av. Determining Market Grades of Corn, Vocational Agriculture Service, University of Illinois, Urbana, Illinois.

8 av. Factors Affecting Classes and Grades of Shelled Corn, Vocational Agriculture Service, University of Illinois, Urbana, Illinois.

9 av. Applying for a Job, Vocational Agriculture Service, University of Illinois, Urbana, Illinois.

10 av. Human Relations in Agricultural Business, Vocational Agriculture Service, University of Illinois, Urbana, Illinois.

11 av. Cleaning Electric Motors, Vocational Agriculture Service, University of Illinois, Urbana, Illinois.

12 av. Practical Maintenance of Electric Motors, Vocational Agriculture Service, University of Illinois, Urbana, Illinois.

13 av. Trouble Shooting Electric Motors, Vocational Agriculture Service, University of Illinois, Urbana, Illinois.

TEACHER COMPETENCIES AND TRAINING AVAILABLE

Teachers interested in obtaining additional experience in agricultural products should request area community colleges, four year institutions, Division of Vocational and Technical Education, Illinois Vocational Association, Vocational Agricultural Service, and local industry to conduct workshops in special interest areas.